Ontario

Ministry of the Environment

Central Region

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SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAM

1978 Sampling Results for Lakes in the Central Region of the Ministry of the Environment

1) Allen Lake, Dudley & Harcourt Twps., Haliburton
2) Balsam Lake, Victoria County
3) Bass Lake, Oro & Orillia Twps., Simcoe County
4) Baxter Lake, Twp. of Georgian Bay, Muskoka
5) Beech Lake, Stanhope Twp., Haliburton
6) Belmont Lake, Belmont Twp., Peterborough
7) Big Barnham Lake, Dudley Twp., Haliburton
8) Big Straggle Lake, Harcourt Twp., Haliburton
9) Billings Lake, Glamorgan Twp., Haliburton
10) Birch Bark (Trounce) Lake, Galway Twp., Peterborough
11) Bob Lake, Anson Twp., Haliburton
12) Bruce Lake, Twp. of Muskoka Lakes, Muskoka
13) Canning Lake, Minden & Snowdon Twp., Haliburton
14) Chandos Lake, Chandos Twp., Peterborough
15) Clear Lake, Oakley Ward, Town of Bracebridge, Muskoka
16) Clearwater Lake, Town of Gravenhurst, Muskoka
17) Crego Lake, Somerville Twp., Victoria County
18) Crystal Lake, Galway Twp., Peterborough
19) Devil's (Lutterworth) Lake, Lutterworth Twp., Haliburton
20) Doeskin Lake, Town of Gravenhurst, Muskoka
21) Drag Lake, Dysart et al, Haliburton
22) Dummer Lake, Dummer Township, Peterborough
23) Eagle Lake, Guilford Twp., Haliburton
24) East Lake, Harcourt Twp., Haliburton
25) Fairy Lake, Town of Huntsville, Muskoka
26) Fairlain Lake, Tiny Twp., Simcoe
27) George's Lake, Harcourt Twp., Haliburton
28) Gibson Lake, Twp. of Georgian Bay, Muskoka
29) Gull Lake, Lutterworth Twp., Haliburton
30) Haliburton Lake, Harburn Twp., Haliburton
31) Hall's Lake, Stanhope Twp., Haliburton
32) Harp Lake, Town of Huntsville, Muskoka
33) Head Lake, Lexton & Digby Twp., Victoria
34) Jack Lake, Burleigh and Methuen Twps., Peterborough
35) Kashagawigamog Lake, Dysart and Minden Twp., Haliburton
36) Kawagama Lake, Haliburton
37) Kennaway Lake, Harcourt Twp., Haliburton
38) Kennisis Lake, Havelock and Guilford Twps., Haliburton
39) Lake Joseph, Twp. of Muskoka Lakes, Muskoka
40) Lake of Bays, Twp. of Lake of Bays, Muskoka
41) Lake Rosseau, Twp. of Muskoka Lakes, Muskoka
42) Lake Vernon, Town of Huntsville, Muskoka
43) Leech Lake, Town of Bracebridge,, Muskoka
44) Little Kennisis Lake, Havelock Twp., Haliburton
45) Little Straggle Lake, Harcourt Twp., Haliburton
46) Long Lake, Monmouth Twp., Haliburton
47) Long Lake, Twp. of Muskoka Lakes, Muskoka
48) Long Lake, Dudley Twp., Haliburton
49) Loon Lake, Town of Gravenhurst, Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAM Cont'd

50) Looncall Lake, Burleigh Twp., Peterborough
51) Mary Lake, Town of Huntsville, Muskoka
52) Medora Lake, Twp. of Muskoka Lakes, Muskoka
53) Miskwabi Lake, Dudley Twp., Haliburton
54) Moose Lake, Guilford & Harburn Twp., Haliburton
55) Muldrew Lake, Town of Gravenhurst, Muskoka
56) Muskoka Bay, Town of Gravenhurst, Muskoka
57) Percy Lake, Harburn Twp., Haliburton
58) Peninsula Lake, Twp. of Lake of Bays, Muskoka
59) Ril Lake, Twp. of Lake of Bays, Muskoka
60) Round Lake, Belmont Twp., Peterborough
61) Salerno Lake, Snowdon and Glamorgan Twp., Haliburton
62) Shadow Lake, Laxton & Somerville Twp., Victoria
63) Six Mile Lake, Twp. of Georgian Bay, Muskoka
64) Soyers Lake, Minden Twp., Haliburton
65) Stony Lake, Dummer Twp., Peterborough
66) Stormy Lake, Glamorgan Twp., Haliburton
67) Tallan Lake, Chandos Twp., Peterborough
68) Tock Lake, McClintock Twp., Haliburton
69) Turtle Lake, Town of Gravenhurst, Muskoka
70) Walker's Lake, Twp. of Lake of Bays, Muskoka
71) Waseosa Lake, Town of Huntsville, Muskoka
72) Wolf Lake, Anstruther Twp., Peterborough
73) Wood Lake, Town of Bracebridge, Muskoka

Ontario

Ministry of the Environment

ALLEN LAKE
Dudley & Harcourt Townships,
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Allen Lake

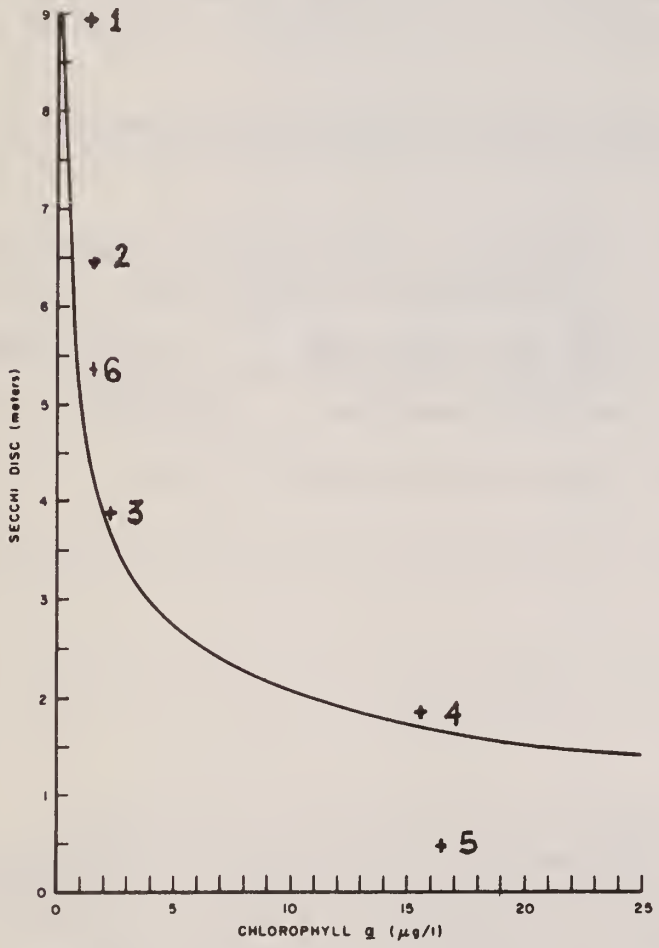
Date	Stn. - Main S.D.	Chloro. a
June 11	6.0	0.9
18	6.0	1.2
25	6.0	1.1
July 3	5.5	1.7
9	5.0	1.9
16	5.0	1.8
23	5.0	2.0
30	4.75	1.6
Aug 7	4.75	1.8
Mean	5.3	1.6

The Secchi disc readings varied from 6.0 to 4.75 meters, with the highest measurements of water transparency occurring in June and then declining during the remaining of the period sampled. The chlorophyll a concentraiton varied from 0.9 to 2.0 ug/l. The lowest chlorophyll a concentrations were recorded in June, corresponding to the highest measurements of water transparency.

Based on the seasonal means for these two parameters, Allen Lake would be considered unenriched, characterized by a high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Allen Lake from 1973 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973	4.7	1.3
1974	4.9	1.2
1975	5.6	1.8
1976	5.3	1.8
1977	5.6	-
1978	5.3	1.6
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Allen Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Allen Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the last four years, the seasonal mean Secchi disc readings has varied between 5.3 and 5.6 meters, and the chlorophyll a concentration has varied from 1.8 to 1.6 ug/l. This minimal degree of variation is indicative of a stable lake condition. Continued participation in this program is recommended, in order to determine if this condition persists.

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Ontario

Ministry of the Environment

BALSAM LAKE
Victoria County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

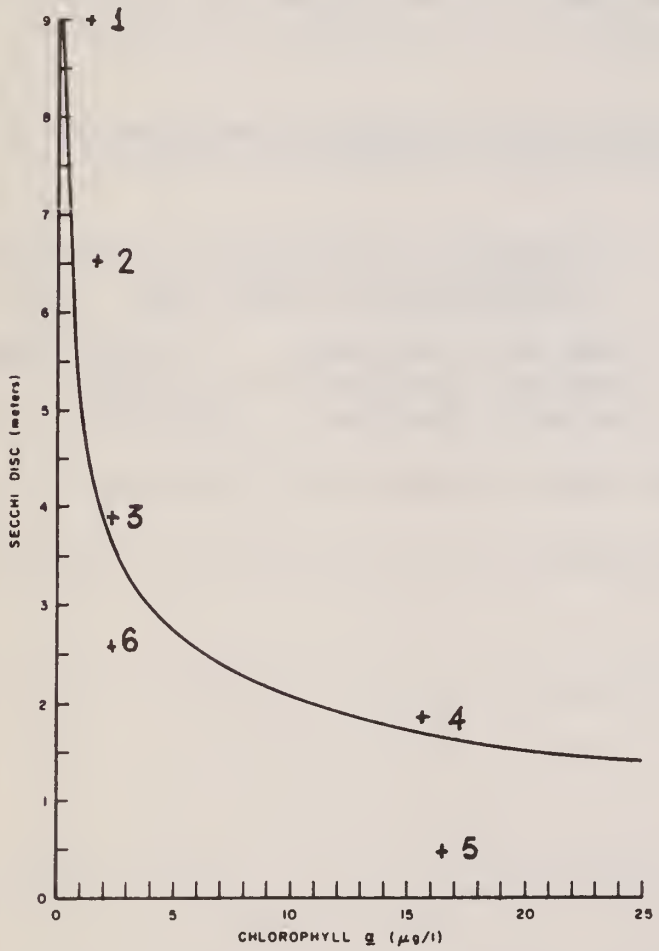
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Balsam Lake

Date	Stn. - South Bay S.D.	Chloro. a
May 21	3.0	1.4
June 3	3.0	3.1
10	3.0	5.6
24	2.0	1.3
July 2	2.0	1.9
15	2.5	1.9
Aug 5	3.5	1.5
19	2.0	2.0
Sept 4	2.0	2.4
Mean	2.6	2.3

The Secchi disc readings varied from 3.0 to 2.0 meters, and the chlorophyll a concentration varied from 1.4 to 5.6 ug/l, during the period sampled. No trend was apparent in the variations experienced by either of these parameters. The seasonal mean chlorophyll a concentration is indicative of a moderate level of enrichment, whereas the mean Secchi disc reading is characteristic of an enriched lake. It is expected that the degree of transparency is being affected by the presence of suspended material, other than algae, resulting in lower readings than would normally be encountered in a moderately enriched waterbody.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from South Bay, Balsam Lake in 1977 and 1978.

Year	Stn.- South Bay S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977	2.9	-
1978	2.6	2.3
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Balsam Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Balsam Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph demonstrates the difference in transparency between the main lake and South Bay whereas, the concentration of chlorophyll a is approximately the same.

Continued participation in this program is recommended, in order that sufficient data may be obtained to define any long-term water quality trends.

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BASS LAKE
Oro & Orillia Townships,
Simcoe County

Ontario

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Bass Lake

Date	Stn.- Main S.D.	Chloro. a
June 9	1.8	6.1
19	2.4	3.2
28	1.7	6.7
July 4	1.4	7.3
12	1.7	3.1
25	1.7	7.1
26	1.8	8.3
Aug 9	1.5	6.6
22	1.2	7.7
Sept 5	1.5	8.1
19	1.5	10.8
Oct 17	3.0	5.7
Mean	1.8	6.7

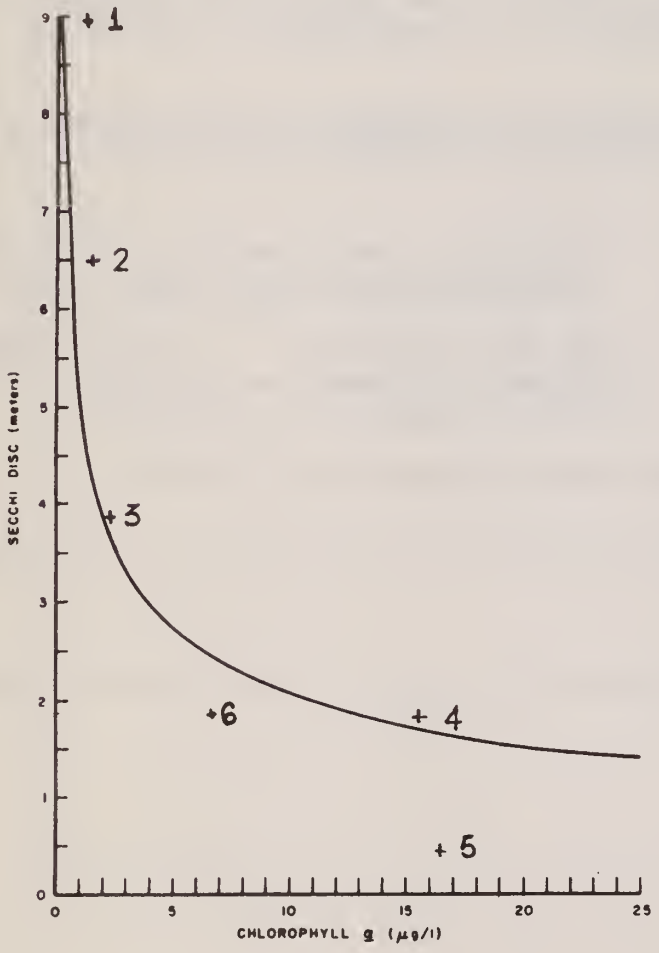
The Secchi disc readings varied from 1.2 to 3.0 meters and the chlorophyll a concentration varied from 3.1 to 10.8 ug/l, during the period sampled. No trend was apparent in the variations experienced by either of these parameters. The average seasonal values for these two parameters are indicative of an enriched lake, characterized by a low degree of water transparency and high algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Bass Lake from 1973 to 1978

Year	Stn.- Main S.D.	Chloro. a
1971		
1972		
1973	2.2	2.6
1974	2.0	2.4 (1.6 m, 6.4 ug/l) *
1975	1.9	6.5
1976	2.0	4.8
1977	2.1	-
1978	1.8	6.7

"

* MOE data



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Bass Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Bass Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The variations in average seasonal values since commencement of this programme in 1973 are the result of natural yearly fluctuations, not an alteration in the quality of Bass Lake. Given the enriched shallow nature of Bass Lake, considerable yearly variation in chlorophyll a concentrations can be expected.

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Ministry of the Environment

BAXTER LAKE
Township of Georgian Bay
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

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Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

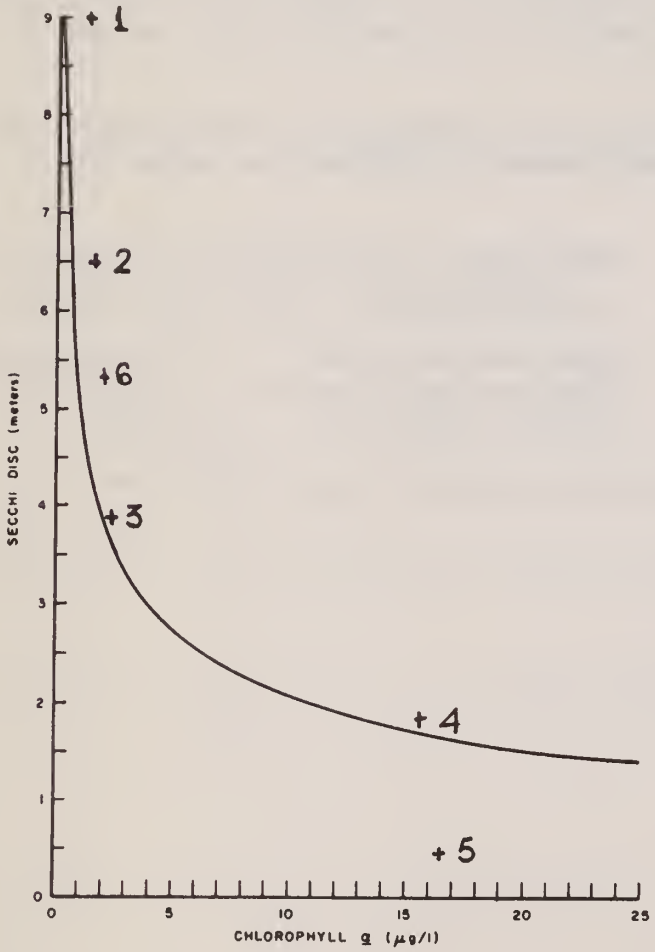
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Baxter Lake

Date	Stn. - Main S.D.	Chloro. a
June 18	3.5	2.7
25	4.25	2.4
July 23	5.25	2.2
Aug 8	6.25	1.5
21	7.0	1.4
Sept 4	5.5	1.1
Oct 1	5.5	2.9
Mean	5.3	2.0

The Secchi disc readings and chlorophyll a concentrations varied considerably during the sampling period; however no trends are apparent. Based on the mean seasonal value for these two parameters, Baxter Lake would be considered unenriched, characterized by a high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Baxter Lake in 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978	5.3	2.0
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Baxter Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Baxter Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph illustrates the enrichment status of Baxter Lake relative to other southern Ontario lakes. Although slightly more enriched than Twelve Mile Lake, it is far removed from such highly enriched water bodies as MacLean Lake and Lake Scugog. It is recommended that participation in this program be continued in order that any long-term trends in water quality may be defined.

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Ontario

Ministry of the Environment

BEECH LAKE
Stanhope Township, Provisional
County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

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Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

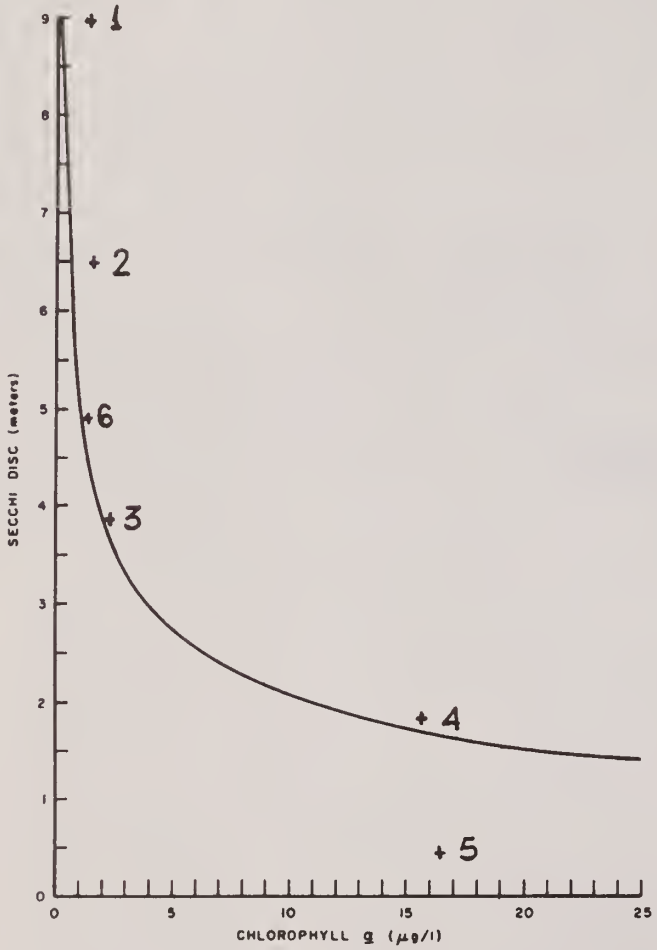
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Beech Lake

Date	Stn. - Main S.D.	Chloro. a
July 3	4.5	2.0
17	5.5	1.6
30	4.25	1.2
Aug 20	5.0	1.1
Mean	4.8	1.5

Since measurements and samples were taken on only four occasions in 1978, it is difficult to obtain even a reasonably accurate estimate of the trophic status of Beech Lake. Based on the seasonal means for the two parameters measured, Beech Lake would be considered unenriched, characterized by a moderately high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Beech Lake from 1976 to 1978

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976	5.3	1.9
1977	5.3	-
1978	4.8	1.5



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Beech Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Beech Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The slight decrease in lake transparency between 1977 and 1978 is probably due to either a natural annual fluctuation or, reflects the reduced data base in 1978. It is recommended that participation in this program be continued, with an increased sampling frequency, in order that trends in the quality of Beech Lake may be monitored.

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Ontario

Ministry of the Environment

BELMONT LAKE
Belmont Township
Peterborough County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

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Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

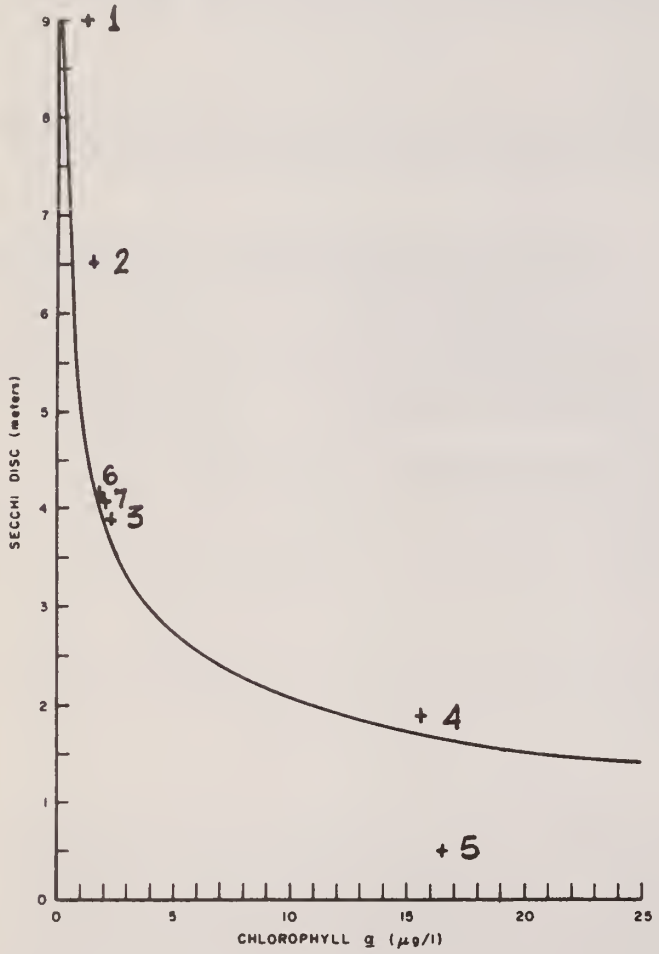
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Belmont Lake

Date		Stn.- Main S.D.	Chloro. a
May	30	3.5	1.8
June	6	4.0	0.9
	14	4.5	0.8
	20	4.5	1.6
	27	4.0	2.0
July	4	4.5	1.9
	12	5.0	2.0
	18	5.0	1.8
	25	5.5	1.1
	31	5.5	1.3
Aug	14	5.0	1.9
	21	5.0	1.8
	30	4.5	2.2
Sept	5	4.0	1.4
	13	3.75	2.3
Mean		4.8	1.6

Minor fluctuations in Secchi disc depth were exhibited during the 1978 sampling period. The average value of 4.8 meters indicates a moderate degree of transparency while the average chlorophyll a concentration indicates low algal densities. Based on these two parameters Belmont Lake would be considered on the borderline between a moderately enriched and unenriched lake.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Belmont Lake from 1972 to 1978.

Year	Stn. - Main S.D.	Chloro. a	
1971			
1972	3.7	1.3	
1973	-	-	
1974	4.3	1.2	
1975	4.0	2.2	
1976	4.1	1.8	
1977	5.3	-	
1978	4.8	1.6	
"			
1978*	4.1	2.0	* Mean values from MOE/7 Links Water Quality Survey 1978



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Belmont Lake - 1976
7. Belmont Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Belmont Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in Secchi disc readings and chlorophyll a values outlined in Table 2 are attributable in part to natural fluctuations and do not appear to represent a change in water quality. Continuation of this excellent sampling program is encouraged to establish any long-term trends in lake quality.

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Ontario Ministry of the Environment, Central Region, 150 Ferrand Drive, Don Mills, Ontario, M3C 3C3 (416) 424-3000, Att'n. Mr. Dhan Sharma

Ontario

Ministry of the Environment

BIG BARNHAM LAKE
Dudley Township, Provisional
County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

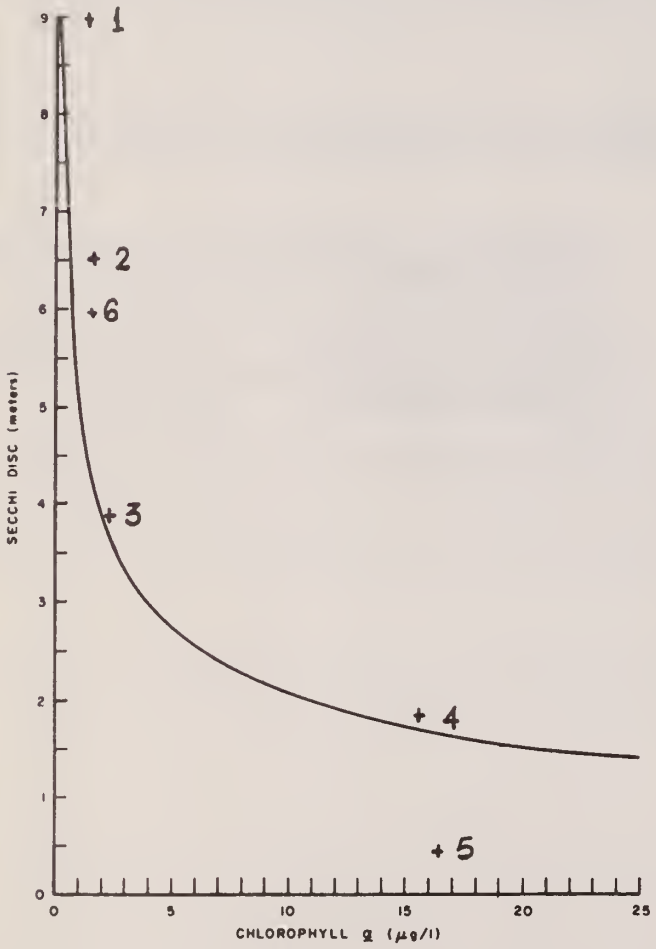
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Big Barnham Lake

Date	Stn. - Main S.D.	Chloro. a
June 3	6.4	1.0
11	6.4	1.8
18	6.4	1.8
25	6.4	1.8
July 16	5.2	1.2
23	5.8	1.3
Aug 7	5.2	1.0
13	4.6	0.9
27	6.4	1.3
Sept 4	6.1	2.4
Mean	5.9	1.4

The Secchi disc readings, which averaged 6.4 meters during the month of June, decreased to 4.6 meters by the middle of August and then improved during the latter part of the sampling period. Based on the seasonal mean values for the two parameters measured, Big Barnham Lake would be considered unenriched, characterized by a high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Big Barnham Lake from 1975 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975	5.5	1.6
1976	4.7	4.0
1977	6.0	-
1978	5.9	1.4
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Big Barnham Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Big Barnham Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the last two years, the season mean Secchi disc readings have remained almost constant, indicating a stable lake condition. Continued participation in this program is recommended to determine if this trend will continue.

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Ontario

Ministry of the Environment

BIG STRAGGLE LAKE
Harcourt Township, Provisional
County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

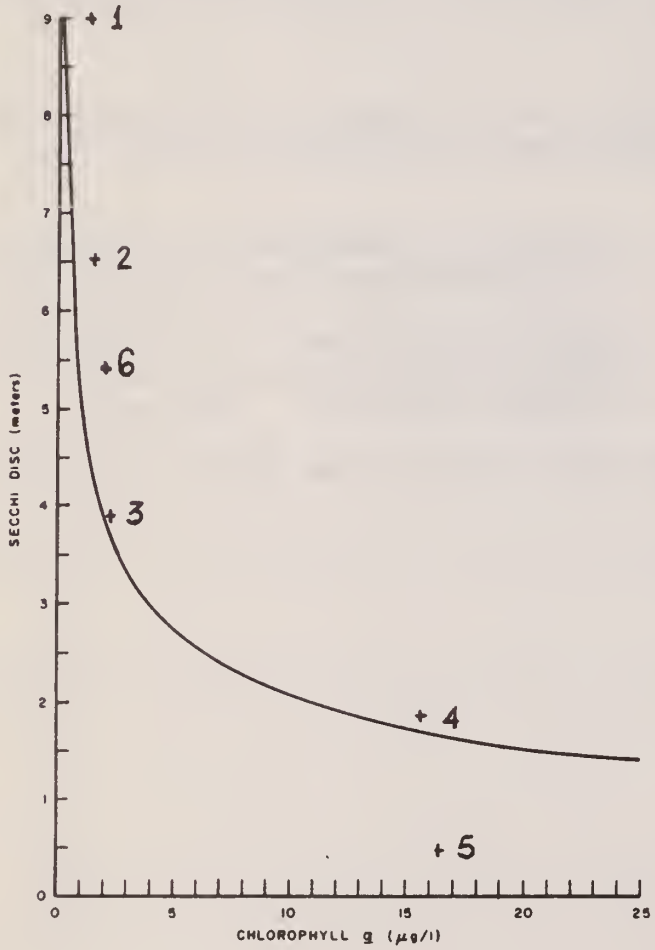
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Big Straggle Lake

Date	Stn. - Main S.D.	Chloro. a
May 28	4.0	0.6
June 11	7.5	1.5
18	6.0	2.1
25	5.0	2.3
July 9	4.5	3.1
16	5.0	2.3
23	5.5	2.6
30	6.75	2.6
Aug 7	4.75	2.1
13	5.0	2.6
20	5.5	2.2
Sept 4	5.0	2.4
Mean	5.4	2.2

Both the Secchi disc readings and chlorophyll a concentrations varied considerably during sampling period, though no trends are apparent. Based on the seasonal means for these two parameters, Big Straggle Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Big Straggle Lake from 1971 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971	3.8	2.1
1972	-	-
1973	4.6	4.0
1974	4.8	1.4
1975	6.0	1.7
1976	4.5	1.8
1977	5.7	-
1978	5.4	2.2



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Big Straggle Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Big Straggle Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Since 1973, the yearly mean Secchi disc readings have not varied more than 25% from one year to the next. Based on experience, this is the maximum yearly, natural fluctuation normally exhibitied by this parameter. The overall condition of Big Straggle appear stable, and it is recommended that participation in this program be continued to determine if this condition persists.

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Ontario

Ministry of the Environment

BILLINGS LAKE
Glamorgan Township, Provisional
County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

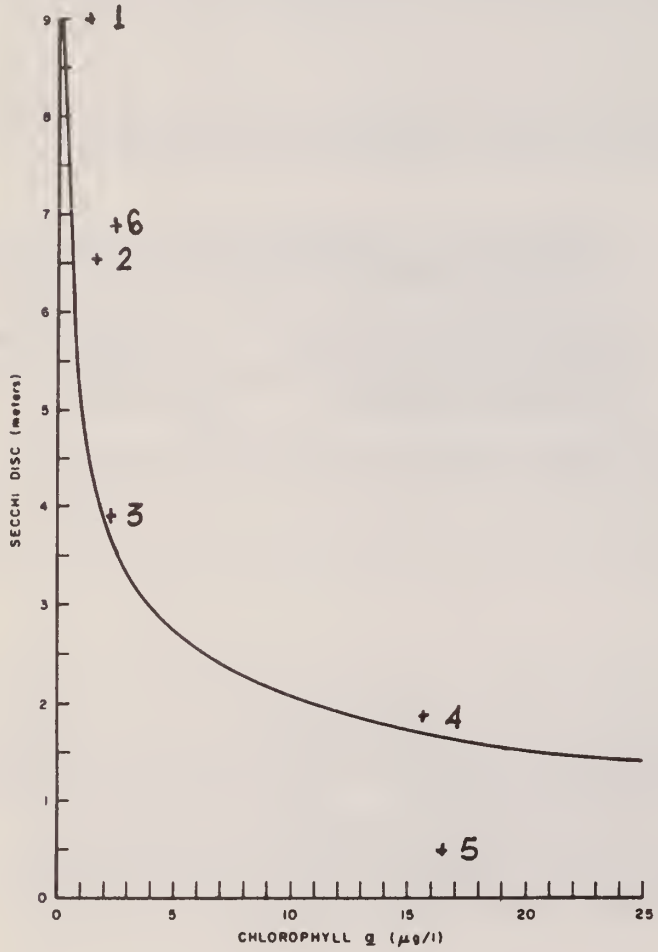
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Billings Lake

Date	Stn. - Main S.D.	Chloro. a
June 11	6.1	2.8
25	5.5	2.4
July 3	5.8	3.1
9	7.2	1.8
23	3.7	3.6
30	7.3	2.1
Aug 7	7.9	2.4
20	7.5	2.4
Spet 4	9.75	3.0
Mean	6.8	2.6

Both the Secchi disc readings&chlorophyll a concentrations exhibited considerable variation during the period sampled. However, no trends are apparent. Based on the seasonal mean of these two parameters, Billings Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Billings Lake from 1973 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973	6.7	1.0
1974	6.5	0.7
1975	6.7	1.2
1976	7.3	1.2
1977	7.2	-
1978	6.8	2.6



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Billings Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Billings Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Since commencement of this program in 1973, the yearly variation in the mean seasonal Secchi disc reading has been minimal. This was also true of the chlorophyll a concentration, prior to this year. Why there was an increase in the mean chlorophyll a concentration this year is not known. It is recommended that participation in this program be continued to monitor future trends, with respect to this parameter.

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Ontario

Ministry of the Environment

BIRCH BARK (Trounce) LAKE
Galway Township,
Peterborough County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

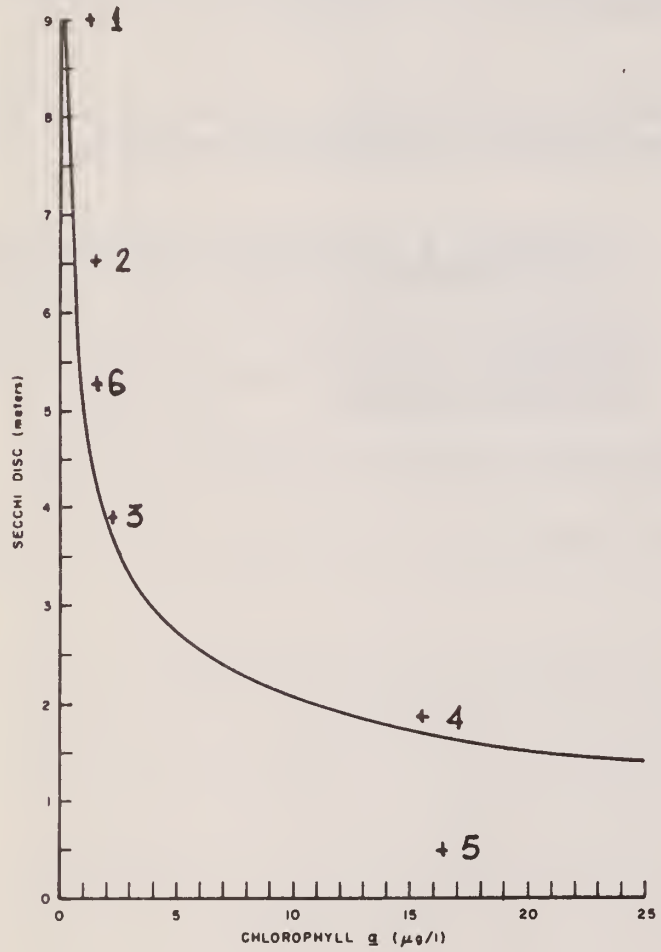
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Birch Bark Lake

Date	Stn. Main S.D.	Chloro. a
June 24	5.6	0.9
July 3	4.75	1.8
16	5.75	1.5
30	5.5	2.5
Aug 6	5.1	2.3
27	5.0	1.4
Sept 4	5.5	2.4
Mean	5.3	1.8

Minor fluctuation in Secchi disc depth and chlorophyll a concentration occurred during the sampling period. Based on seasonal averages for the two parameters Birch Bark Lake is considered unenriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Birch Bark Lake for 1977 and 1978

Year	Stn. S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977	4.8	-
1978	5.3	1.8
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Birch Bark Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Birch Bark Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

A slight increase over the 1977 value of average Secchi disc depth was found in 1978. However, continued participation in the sampling program is encouraged to determine if this indicates a trend.

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Ontario

Ministry of the Environment

BOB LAKE
Anson Township, Provisional
County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Bob Lake

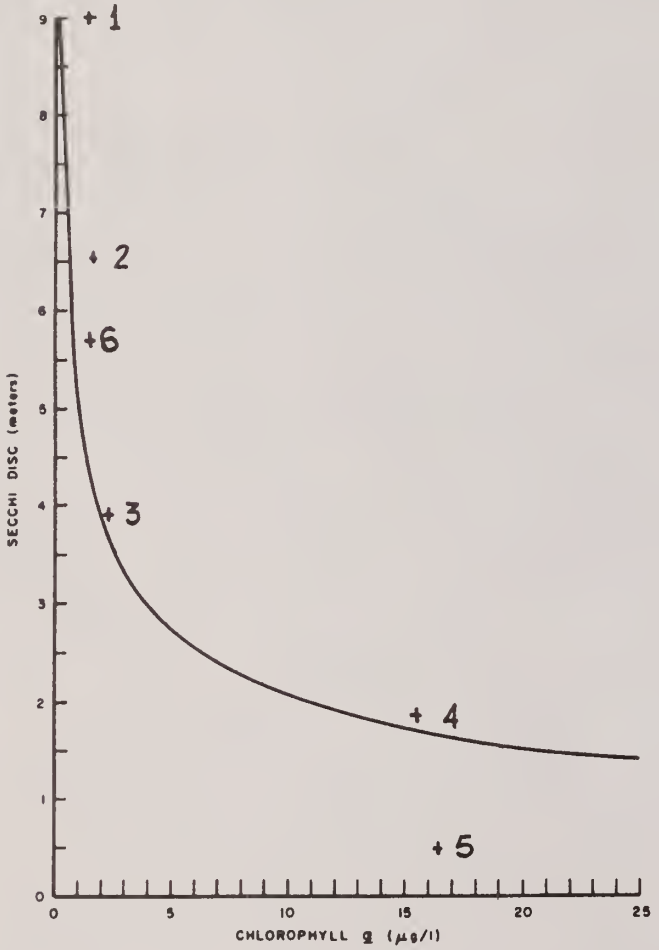
Date	Stn. - Main S.D.	Chloro. a
May 22	4.3	1.3
June 18	4.3	1.5
July 2	4.6	1.9
Aug 6	7.9	1.2
27	7.6	0.7
Mean	5.7	1.3

The Secchi disc readings varied from 4.3 to 7.9 meters during the period sampled, with the highest measurements of water transparency occurring in August. These measurements corresponded to the lowest chlorophyll a concentrations. Based on the season mean for the two parameters measured, Bob Lake would be considered unenriched, characterized by a high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Bob Lake from 1972 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972	5.9	1.2 **
1973	5.2	2.4 *
1974	4.8	1.9 *
1975	5.4	2.9
1976	5.5	2.2
1977	4.6	-
1978	5.7	1.3

** from Dillon, 1974
* based on one set of data only



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Bob Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Bob Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The year to year variations in the seasonal mean Secchi disc reading and chlorophyll a concentration are primarily attributable to natural fluctuations, and do not indicate a change in the overall water quality status. Continued participation in this program is recommended, to determine if the stable status of Bob Lake persists.

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Ontario

Ministry of the Environment

BRUCE LAKE
Township of Muskoka Lakes
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

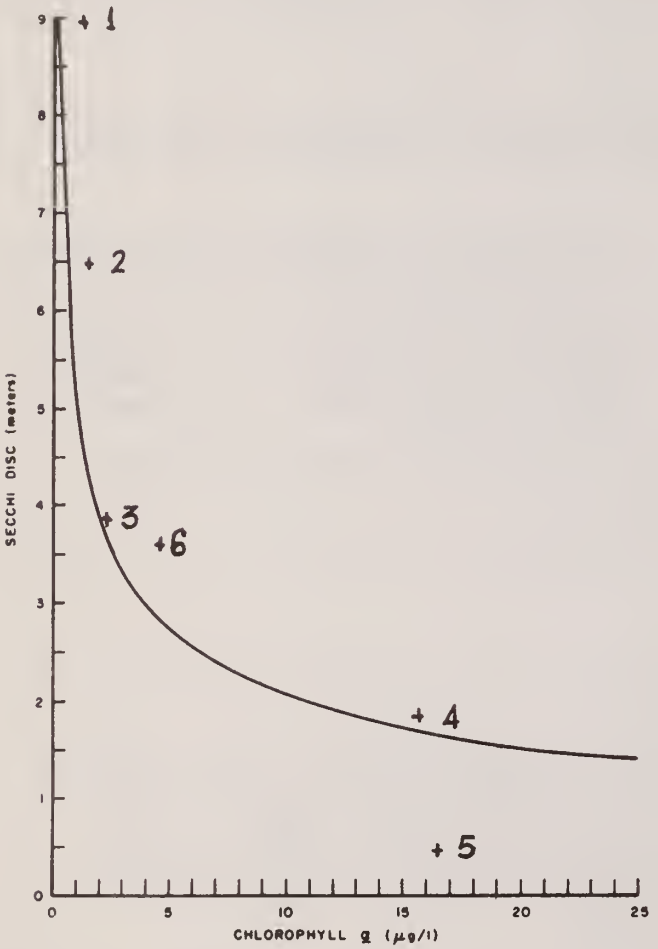
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Bruce Lake

Date	Stn. - Main S.D.	Chloro. a
July 9	3.7	6.5
16	3.5	4.1
23	3.5	3.9
Mean	3.6	4.8

Since Bruce Lake was sampled on only three occasions in 1978, it is difficult to obtain even a reasonably accurate assessment of the lake's trophic status. Based on the available data, Bruce Lake would be considered moderately enriched., characterized by high algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Bruce Lake in 1977 and 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977	1.8	-
1978	3.6	4.8
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Bruce Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Bruce Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The data base is not sufficient to draw any conclusions from regarding trends in the quality of Bruce Lake. Continued participation, with an increased sampling frequency is required to determine any long term trends in water quality.

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Ontario

Ministry of the Environment

CANNING LAKE
Minden & Snowdon Townships
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

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Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

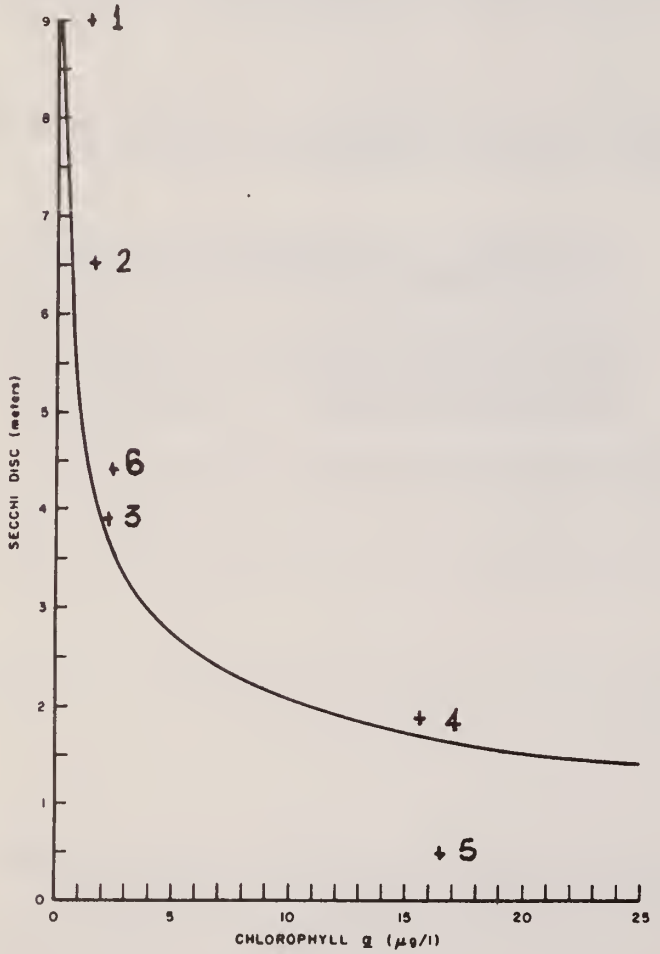
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Canning Lake

Date	Stn. - Main S.D.	Chloro. a
May 22	3.7	1.8
June 11	5.0	1.3
25	6.0	2.0
July 3	4.3	2.7
9	4.9	3.7
19	5.5	-
23	3.7	3.4
30	4.5	2.1
Aug 7	3.7	1.6
13	3.7	-
27	4.4	2.1
Sept 5	3.7	2.0
Mean	4.4	2.3

The Secchi disc readings varied from 3.7 to 6.0 meters, and the chlorophyll a concentration varied from 1.3 to 3.7 ug/l during the period sampled. No trend was apparent in the variations experienced by either of these parameters. Based on the seasonal means of these two parameters, Canning Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderately low suspended algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Canning Lake from 1972 to 1978.

Year	Stn.- Main S.D.	Chloro. a
1971		
1972	4.6	3.0
1973	5.6	1.8
1974	4.8	1.6
1975	4.9	1.6
1976	5.6	1.9
1977	5.5	-
1978	4.4	2.3



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Canning Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Canning Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Since 1972, the yearly mean Secchi disc reading has not varied more than 25% from one year to the next. Based on experience, this is the maximum yearly natural fluctuation normally exhibited by this parameter. Although the 1978 seasonal mean Secchi disc reading declined from its 1977 level, the overall condition of Canning Lake appears stable, and it is recommended that participation in this program be continued to determine if this condition persists.

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Ontario

Ministry of the Environment

CHANDOS LAKE
Chandos Township
Peterborough County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Chandos Lake

Date	Stn. South Bay S.D.	Chloro. a	Stn. Gilmour Bay S.D.	Chloro. a	Stn. North End S.D.	Chloro. a	Stn. South End S.D.	Chloro. a
May 29	4.3	2.4	4.0	3.3	4.3	2.1	4.0	2.2
July 24	4.9	2.8	4.0	6.6	4.9	2.7	4.9	3.0
Aug 21	4.6	1.7	-	-	4.4	2.5	-	-
Sept 5	3.5	1.8	4.3	3.3	3.5	2.4	4.0	3.0
24	3.7	4.8	-	-	3.2	3.3	-	-
Oct 22	3.7	2.0						
Mean	4.1	2.6	4.1	4.4	4.1	2.6	4.3	2.7

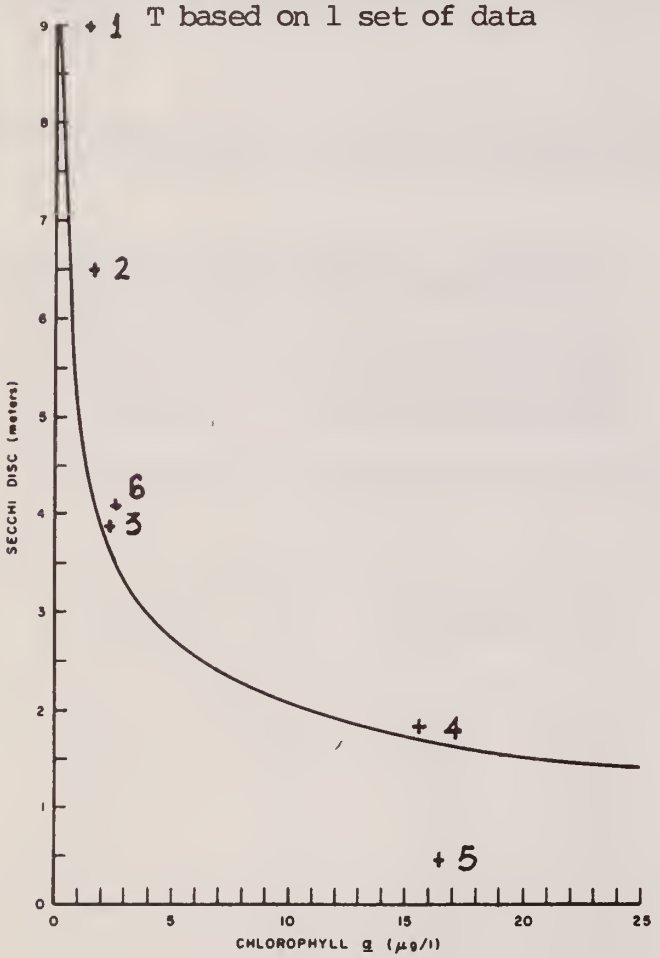
The Secchi disc readings and chlorophyll a values showed minor variation during the sampling period for South Bay and the North End stations. Based on the average values of Secchi disc and chlorophyll a these lake areas can be considered moderately enriched with moderate algal densities.

Since samples were collected from the South End and Gilmour Bay on only three occasions in 1978, it is difficult to estimate the trophic status of these areas. The available data indicate that the South End has a similar trophic status to the North End, but that Gilmour Bay has a higher algal density.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Chandos Lake from 1972 to 1978.

Year	Stn. S.D.	South Bay (1) Chloro. a	Stn. - Gilmour Bay (2) S.D.	Chloro. a	Stn. - North End S.D.	Chloro. a	Stn.-South End S.D.	Chloro. a
1971								
* 1972	3.6	2.0						
** 1973	4.9	1.7						
* 1974	4.0	1.2						
T 1975	5.2	2.3						
1976	4.0	2.2	3.3	5.2				
1977	4.6	-	4.4	-				
1978	4.1	2.6	4.1	4.4	4.1	2.6	4.3	2.7
"								

* mean of 4 stations
** mean of 3 stations
T based on 1 set of data



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Chandos Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Chandos Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Due to the inconsistency of the data contained in Table 2, it is difficult to comment on long-term water quality trends in Chandos Lake. The trophic status of the lake appears stable but more frequent sampling is encouraged in the South End and Gilmour Bay as well as continued sampling at the other stations to define long-term lake quality trends.

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Ontario

Ministry of the Environment

CLEAR LAKE
Oakley Ward, Town of Bracebridge
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

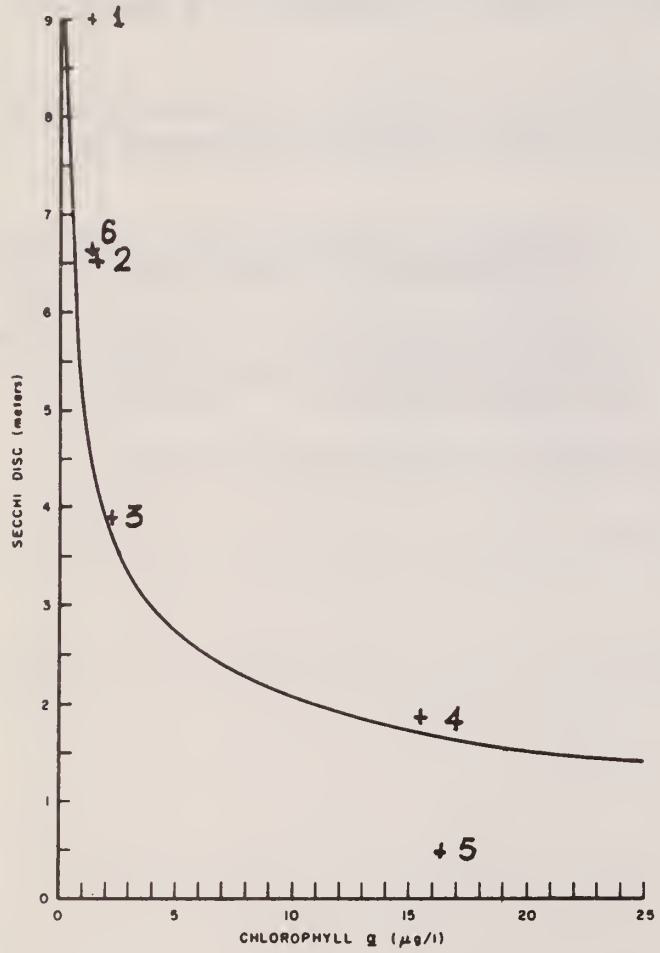
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Clear Lake

Date	Stn. - Main S.D.	Chloro. a
May 14	6.4	1.0
22	6.5	0.9
28	7.6	1.4
June 11	8.0	1.5
25	6.6	1.4
July 23	6.0	1.7
Aug 7	6.0	1.5
20	5.9	2.2
Sept 17	6.7	2.0
Mean	6.6	1.5

The Secchi disc readings varied from 5.9 to 8.0 meters, and the chlorophyll a concentrations varied from 0.9 to 2.2 ug/l during the period sampled. No trend was apparent in the variations experienced by either of these parameters. Based on the seasonal means of these two parameters, Clear Lake would be considered unenriched, characterized by a high degree of water transparency and low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Clear Lake in 1977 and 1978

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977	7.1	-
1978	6.6	1.5
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Clear Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Clear Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph illustrates the enrichment status of Clear Lake, relative to other southern Ontario lakes. The status of Clear Lake is comparable to that of Twelve Mile Lake, a clear water unenriched lake, and is far removed from such enriched waterbodies as MacLean Lake. Continued participation in this program will enable long-term water quality trends to be defined.

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Ontario

Ministry of the Environment

CLEARWATER LAKE
Town of Gravenhurst,
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

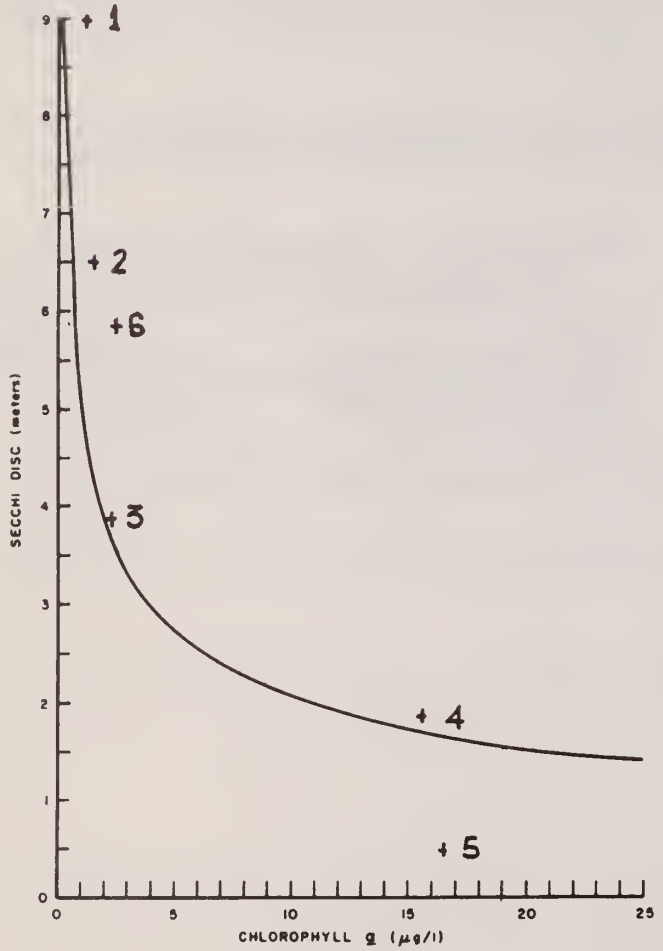
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Clearwater Lake

Date	Stn. - Main S.D.	Chloro. a
June 27	5.0	1.4
July 18	6.5	2.1
Aug 15	7.0	2.5
Sept 18	5.5	2.6
25	5.5	4.0
Mean	5.9	2.5

The Secchi disc readings varied from 5.0 to 7.0 meters, and the chlorophyll a concentration varied from 1.4 to 4.0 ug/l during the period sampled. No trend was apparent in the variations experienced by either of these parameters. Based on the seasonal means of these two parameters, Clearwater Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Clearwater Lake from 1975 to 1978.

Year	Stn. S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975	4.3	1.5
1976	5.4	1.8
1977	5.3	-
1978	5.9	2.5



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Clearwater Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Clearwater Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

It is probable, that the improvement, in the mean seasonal Secchi disc reading in 1978 is the result of natural fluctuations, and does not represent an actual improvement in water quality. Continued participation in this program will allow long-term water quality trends to be better defined.

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Ontario

CREGO LAKE
Sommerville Township
Victoria County

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

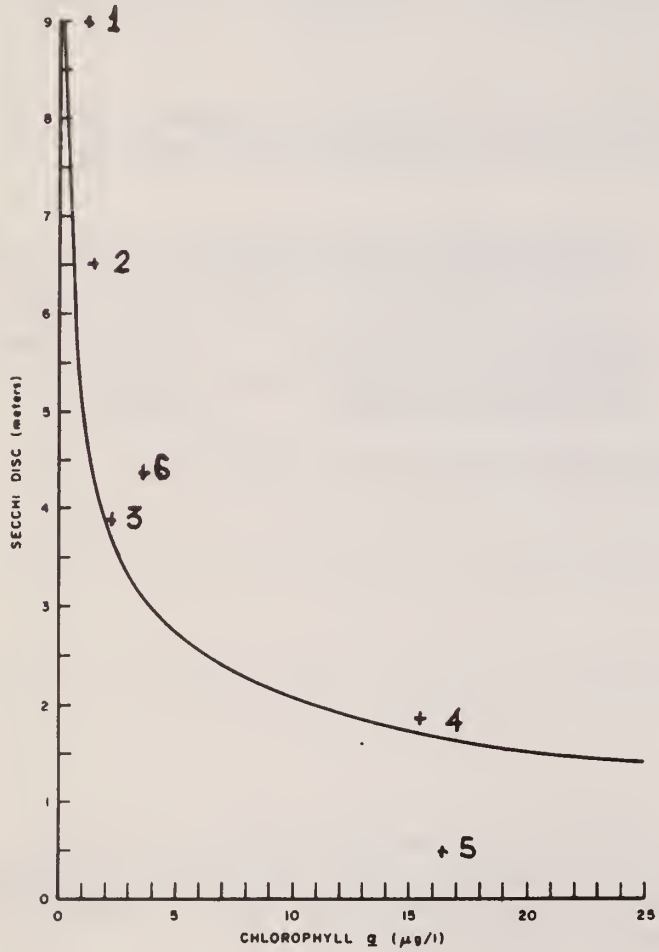
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Crego Lake

Date	Stn.- Main S.D.	Chloro. a
May 21	3.25	1.8
June 4	4.0	4.7
18	3.75	3.0
July 3	3.5	3.7
23	4.25	4.3
Aug 7	4.75	4.0
20	5.0	4.2
Spet 4	5.0	5.2
24	5.0	4.5
Oct 9	4.5	2.0
Mean	4.3	3.7

Minor fluctuation in Secchi disc readings and chlorophyll a values occurred over the sampling period. The average values for the two parameters indicate that Crego Lake is moderately enriched with a moderate algal density.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Crego Lake in 1977 to 1978

Year	Stn. S.D.	Main Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977	4.0	-
1978	4.3	3.7
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Crego Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Crego Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The difference between the 1977 and 1978 average Secchi disc values may be due to natural yearly fluctuation. Continued participation in the sampling program is encouraged to define long-term trends.

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Ontario

Ministry of the Environment

CRYSTAL LAKE
Galway Township,
Peterborough County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Crystal Lake

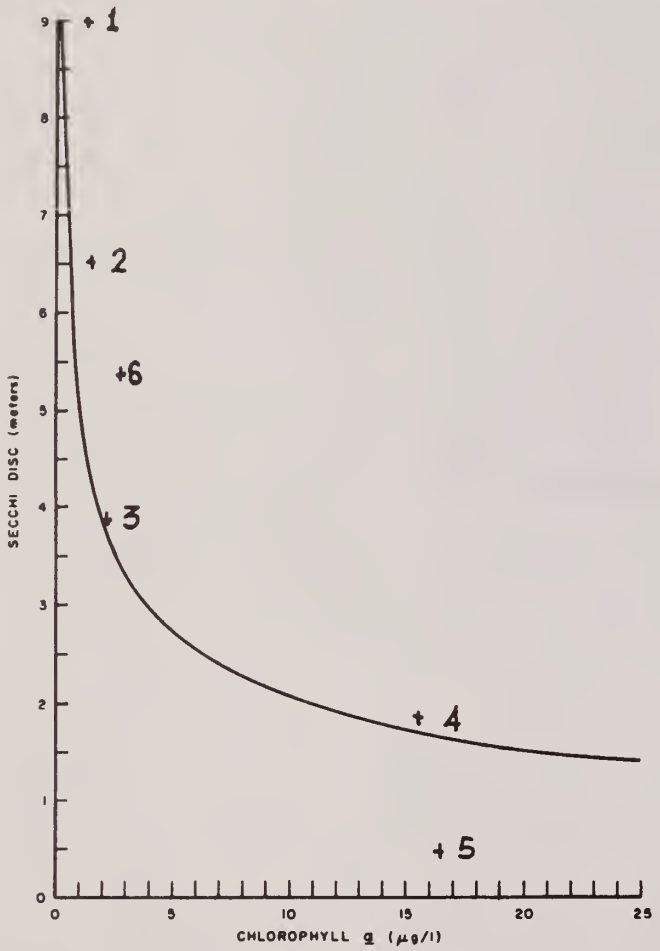
Date	Stn. A S.D.	Stn. A Chloro. a	Stn.B S.D.	Stn.B Chloro. a	Stn. C S.D.	Stn. C Chloro. a	Stn. D S.D.	Stn. D Chloro. a
July 9	5.7	3.0	5.0	3.9	5.7	4.5	4.5	4.9
30	5.0	2.3	4.5	2.4	5.0	3.5	3.0	2.3
Mean	5.4	2.7	4.8	3.1	5.4	4.0	3.8	3.6

Insufficient samples were collected to draw meaningful conclusions about the trophic status of Crystal Lake.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Crystal Lake in 1977 and 1978

Year	Stn. A S.D.	Chloro. a	Stn. B S.D.	Chloro. a	Stn. C S.D.	Chloro. a	Stn. D S.D.	Chloro. a
1971								
1972								
1973								
1974								
1975								
1976								
1977	4.5		4.3		5.1		4.2	
1978	5.4	2.7	4.8	3.1	5.4	4.0	3.8	3.6
1977 *	5.1		4.7		5.1		5.0	

* average values from samples taken during a comparable time period by MOE staff.



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Crystal Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Crystal Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The frequency of sampling must be increased, if sufficient data is to be obtained to determine the long-term trends in lake quality.

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Ontario

Ministry of the Environment

DEVIL'S (LUTTERWORTH) LAKE
Lutterworth Township, Provisional
County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

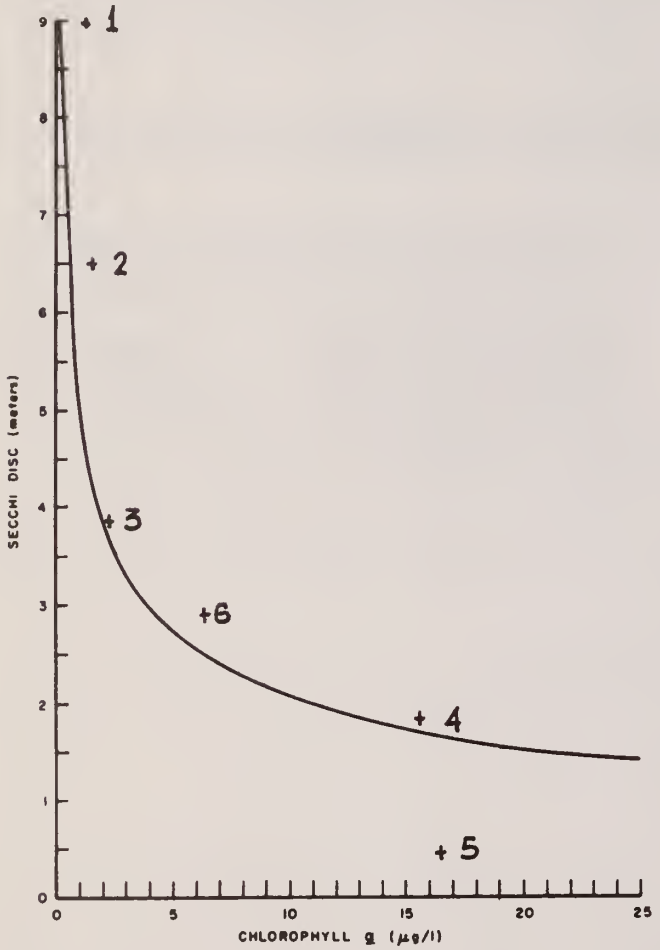
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Devil's Lake

Date	Stn. A S.D.	Stn. A Chloro. a	Stn. B S.D.	Stn. B Chloro. a
June 18	1.25	4.7	2.25	5.8
July 3	2.75	3.3	2.25	5.2
16	4.0	4.7	4.0	1.1
23	3.0	6.1	2.0	17.6
Aug 7	5.0	5.2	3.0	-
20	2.5	4.5	2.5	-
Sept 24	2.6	16.0	2.5	6.0
Mean	2.9	6.4	2.6	7.1

The Secchi disc readings and chlorophyll a concentrations experienced considerable variations during the period sampled, however no trends are apparent. Based on the seasonal means for these parameters, Devil's Lake would be considered an encriched lake, characterized by a low degree of water transparency and high densities of suspended algae. The variation in water quality between the two stations sampled is minimal. The chlorophyll a data from Aug. 7 and Aug. 20 at Stn. B was deleted due to anomalies.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Devil's Lake in 1977 and 1978

Year	Stn. A S.D.	Chloro. a	Stn. B S.D.	Chloro. a
1971				
1972				
1973				
1974				
1975				
1976				
1977	3.2		3.2	
1978	2.9	6.4	2.6	7.1
"				



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Devil's Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Devil's Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph illustrates the enrichment status of Devil's Lake relative to other southern Ontario lakes. Devil's Lake is more enriched than Balsam Lake, however it is still considerably removed from such highly enriched waterbodies as Lake Scugog.

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Ontario

Ministry of the Environment

DOESKIN LAKE
Town of Gravenhurst
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

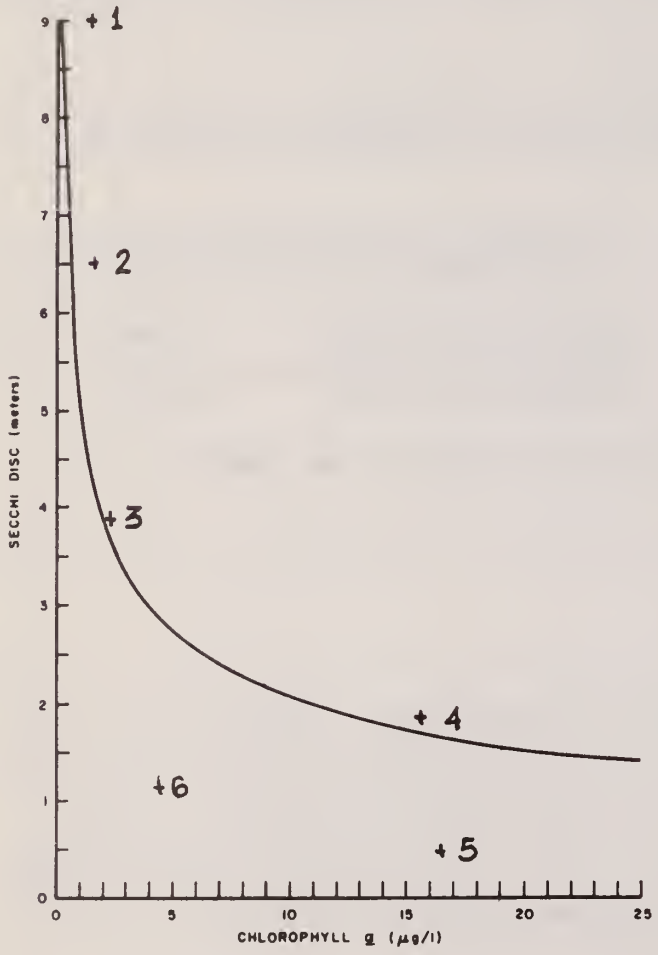
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Doeskin Lake

Date	Stn. - Main S.D.	Chloro. a
June 11	0.9	4.9
25	1.0	5.1
July 9	1.3	4.2
16	1.3	3.6
30	1.5	3.8
Aug 20	1.25	5.0
27	1.25	3.4
Sept 4	1.25	5.7
Mean	1.2	4.5

The Secchi disc readings remained almost constant during the period sampled, whereas the chlorophyll a concentration varied from 3.4 to 5.7 ug/l. Based on the seasonal means for these two parameters, Doeskin Lake would be considered enriched, characterized by a low degree of water transparency and high algal densities. The low Secchi disc readings are not totally due to the density of suspended algae, but partly the result of the colouration of Doeskin Lake.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Doeskin Lake in 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978	1.2	4.5
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Doeskin Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Doeskin Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Although the position of the Doeskin Lake has been indicated on the above graph, it is not an accurate reflection of the lake's enrichment status. The graph was constructed using data from clear-water lakes, and does not compensate for the colouration of Doeskin Lake. It is recommended that participation in this program be continued, in order that any long-term trends in water quality may be determined.

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Ontario

Ministry of the Environment

DRAG LAKE
Dysart et al, Provisional
County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

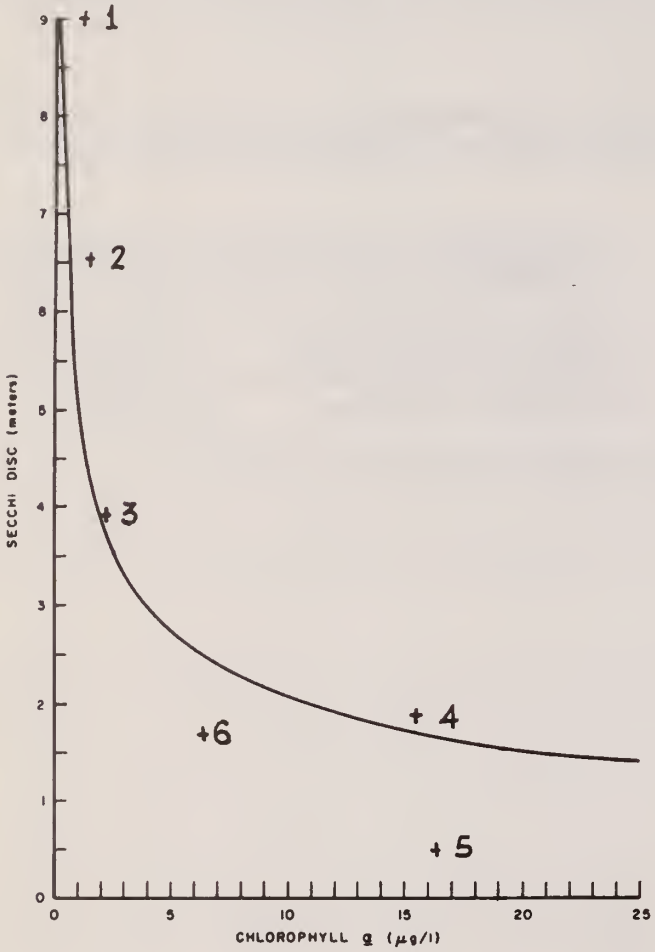
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Drag Lake

Date	Stn. - Main S.D.	Chloro. a
July 3	6.7	1.4
9	7.3	1.5
23	6.1	2.3
30	7.0	2.5
Aug 7	5.8	1.7
13	6.1	1.3
20	6.1	1.4
27	5.5	1.5
Sept 4	5.8	1.5
Mean	6.3	1.7

The Secchi disc readings varied from 5.5 to 7.3 meters and the chlorophyll a concentration varied from 1.3 to 2.4 ug/l. No trend is apparent in the variations exhibited by either of these parameters. Based on the season mean of these two parameters, Drag Lake would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Drag Lake from 1973 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973	6.0	2.9
1974	6.2	0.6
1975	6.8	1.4
1976	5.8	2.4
1977	6.4	-
1978	6.3	1.7



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Drag Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Drag Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in the seasonal mean Secchi disc readings and chlorophyll a concentrations reflect natural annual fluctuations. The enrichment status of Drag Lake appears relatively stable. It is recommended that participation in this program be continued to determine if this condition persists.

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Ontario

Ministry of the Environment

DUMMER LAKE
Dummer Township
Peterborough County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

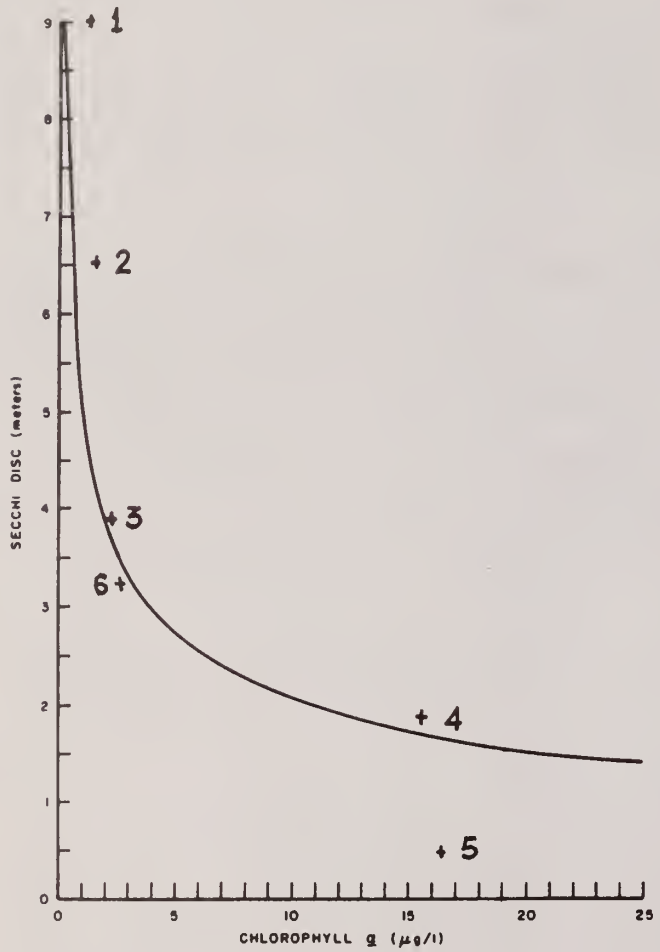
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Dummer Lake

Date	Stn. - Main S.D.	Chloro. a
May 22	5.0	-
June 4	5.25	1.1
18	3.0	2.5
July 2	3.5	2.5
16	2.5	2.6
23	2.5	2.9
Aug 6	2.5	2.2
13	2.4	1.9
24	2.5	7.0
Mean	3.2	2.8

A gradual decrease in Secchi disc readings was noted in Dummer Lake during the sampling period. However no clear trend in the chlorophyll a values was apparent. Based on the average values for the two parameters Dummer Lake is considered moderately enriched with moderate algal density.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Dummer Lake in 1978

Year	Stn. S.D.	Main Chloro. a	
1971			
1972			
1973			
1974			
1975			
1976			
1977			
1978	3.2	2.8	
"			
1978*	3.8	3.9	* mean values from MOE/7 Links Water Quality Survey 1978



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Dummer Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Dummer Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Continued participation in the sampling program is encouraged to allow a year to year comparison for long-term trends.

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Ontario

Ministry of the Environment

EAGLE LAKE
Guilford Township, Provisional
County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Eagle Lake

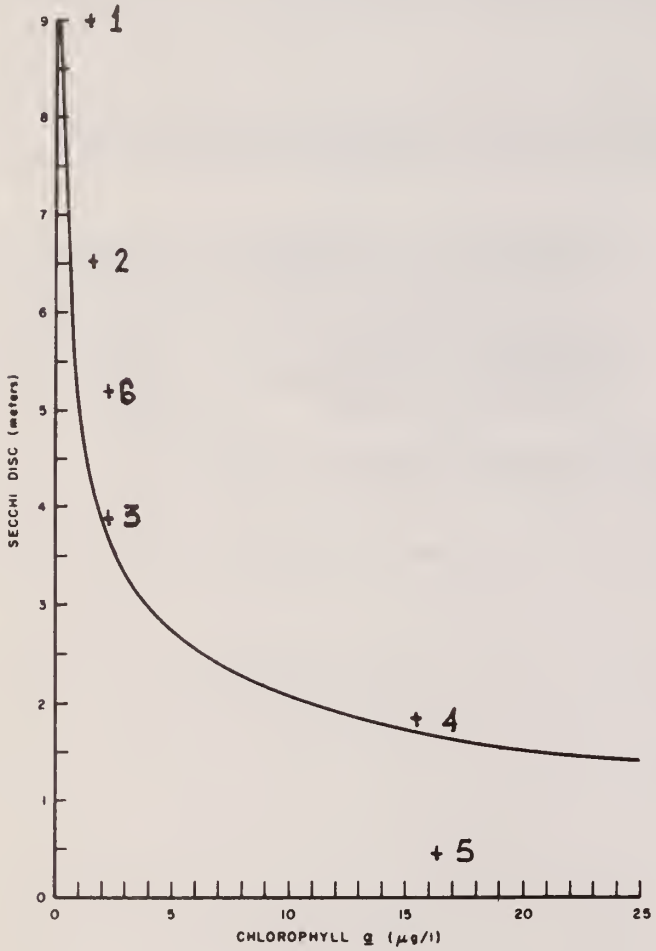
Date	Stn. - Main S.D.	Chloro. a
July 3	5.5	2.2
9	5.0	2.7
16	5.5	2.6
23	4.5	2.2
30	5.0	2.6
Aug 7	5.0	2.3
13	6.0	2.2
20	5.0	1.7
27	5.5	1.6
Mean	5.7	2.2

The Secchi disc readings varied from 4.5 to 6.0 meters and the chlorophyll a concentrations varied from 1.6 to 2.7 ug/l during the period sampled. No trends are apparent in the variations experienced by either of these parameters. Based on the seasonal means for these two parameters, Eagle Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Eagle Lake from 1972 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972	6.2	1.8 *
1973	3.6	1.5
1974	4.2	0.5
1975	6.6	1.6
1976	-	-
1977	-	-
1978	5.2	2.2
"		

* from Dillon, 1974



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Eagle Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Eagle Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

During the period for which data is available from Eagle Lake, the seasonal mean Secchi disc readings have varied from 3.6 to 6.6 meters, and the seasonal mean chlorophyll a concentrations have varied from 0.5 to 2.2 ug/l. These variations have not followed any pattern, and probably reflect natural yearly fluctuations. Continued participation in this program is recommended to determine if this trend continues.

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Ontario

Ministry of the Environment

EAST LAKE
Harcourt Township, Provisional
County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

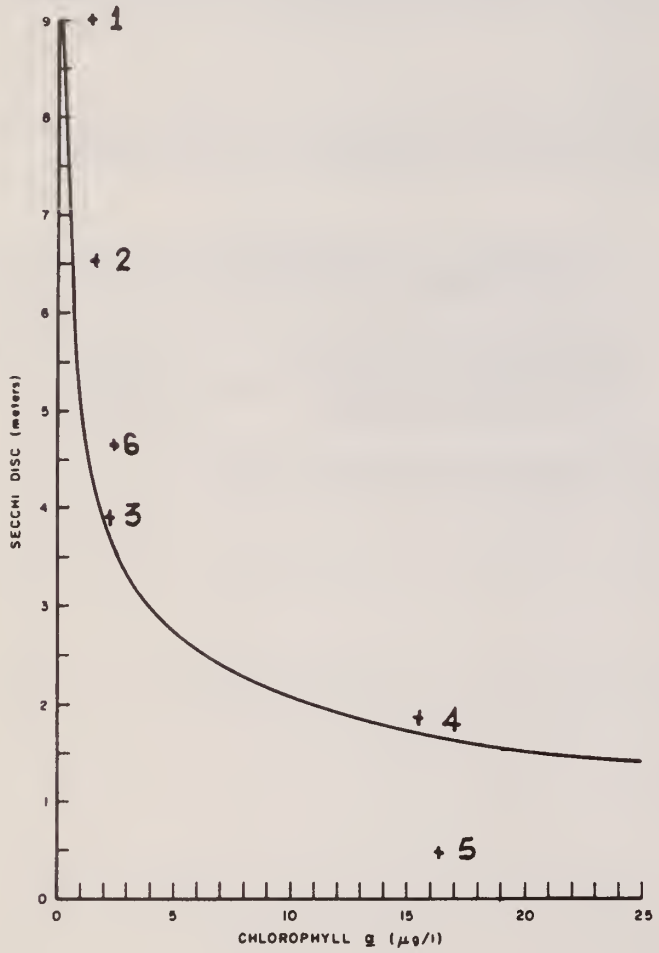
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from East Lake

Date		Stn. - Main S.D.	Chloro. a
July	3	4.0	2.2
	9	5.0	2.9
	16	3.5	3.4
	23	3.0	2.2
	30	6.8	2.8
Aug	7	4.5	1.6
	13	5.0	1.6
	20	5.0	1.9
Sept	4	4.5	2.0
Mean		4.6	2.3

The Secchi disc readings experienced considerable variation, ranging from 3.5 to 6.8 meters. The chlorophyll a concentrations varied from 1.6 to 3.4 ug/l. No trends are apparent in the variations experienced by either of these parameters. Based on the seasonal means for these two parameters, East Lake would be considered moderately enriched, characterized by a moderately low algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from East Lake from 1971 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971	4.3	2.7
1972	-	-
1973	5.0	1.9
1974	3.6	1.5
1975	4.2	2.2
1976	4.2	2.3
1977	4.2	-
1978	4.6	2.3



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. East Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for East Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in the seasonal mean Secchi disc readings and chlorophyll a concentrations reflect natural annual fluctuations. The enrichment status of East Lake appears relatively stable. It is recommended that participation in this program be continued, to determine if this condition persists.

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Ontario

FAIRY LAKE
Town of Huntsville,
District Municipality of Muskoka

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Fairy Lake

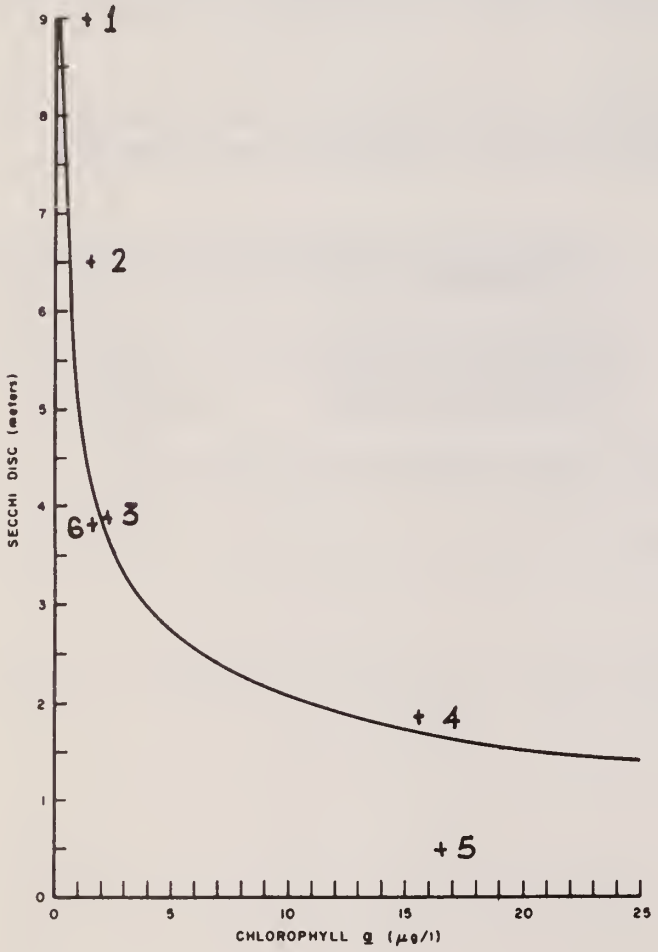
Date	Stn.- Main S.D.	Chloro. a
June 11	3.0	0.4
25	4.2	1.4
July 9	3.5	1.7
23	3.8	-
Aug 13	3.6	1.0
Sept 10	4.2	1.5
Mean	3.7	1.2

The Secchi disc readings varied from 3.0 to 4.2 meters, and the chlorophyll a concentration varied from 0.4 to 1.7 ug/l during the period sampled. No trends are apparent in the variations experienced by either of these parameters. Based on the seasonal means for these two parameters, Fairy Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and low algal densities. The chlorophyll a data from July 23 was deleted due to anomalies.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Fairy Lake from 1974 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
* 1974	3.6	12.1
1975	3.8	2.2
1976	-	-
1977	4.1	-
1978	3.7	1.2
"		

* one set of data only



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Fairy Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Fairy Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The seasonal mean Secchi disc reading has remained relatively constant during the last three years sampled. The variations experienced by the two parameters reflect natural annual fluctuations. The overall condition of Fairy Lake appears stable, and continued participation in this program is recommended to determine if this trend persists.

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Ontario

Ministry of the Environment

FARLAIN LAKE
Tiny Township
Simcoe County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Farlain Lake

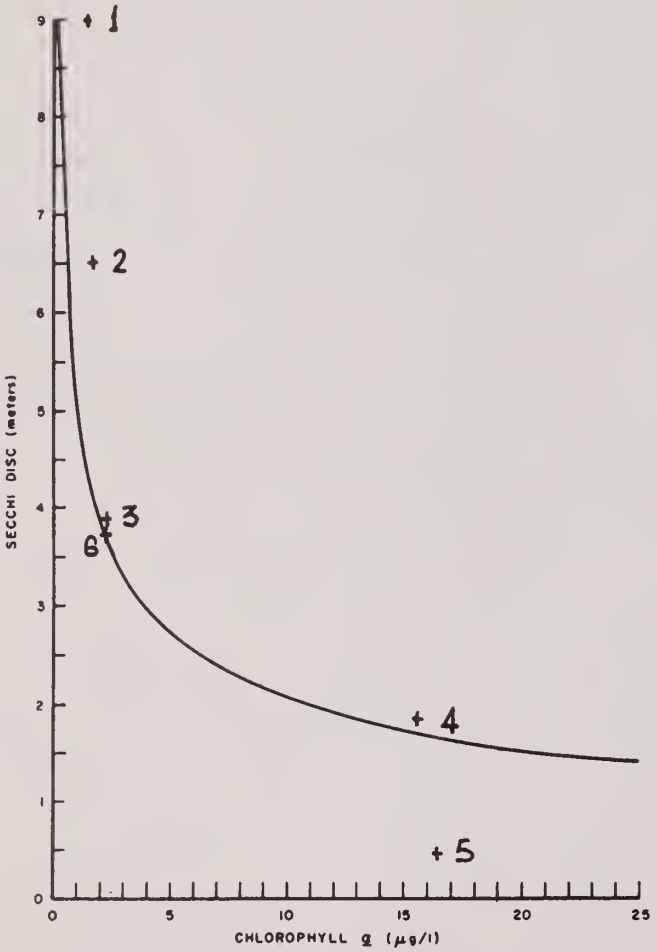
Date	Stn. - Main S.D.	Chloro. a
May 22	3.5	1.3
June 11	4.5	-
July 9	3.5	2.3
31	3.5	2.1
Aug 7	3.5	2.2
27	-	3.6
Mean	3.7	2.3

The Secchi disc readings varied from 3.5 to 4.5 meters and the chlorophyll a concentrations varied from 1.3 to 3.6 ug/l during the period sampled. No trends are apparent in the variations experienced by either of these parameters. Based on the seasonal means of these two parameters, Farlain Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Farlain Lake in 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
* 1973	3.9	2.2
1974		
1975		
1976		
1977		
1978	3.7	2.3
"		

* MOE data



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Farlain lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Farlain Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph illustrates the enrichment status of Farlian Lake relative to other southern Ontario lakes. Its status is comparable to that of Balsam Lake and is far removed from such high enriched water bodies as Lake Scugog. It is recommended that participation in this program be continued to determine any long-term trends in water quality.

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Ontario

GEORGE'S LAKE
Harcourt Township,
Provisional County of Haliburton

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

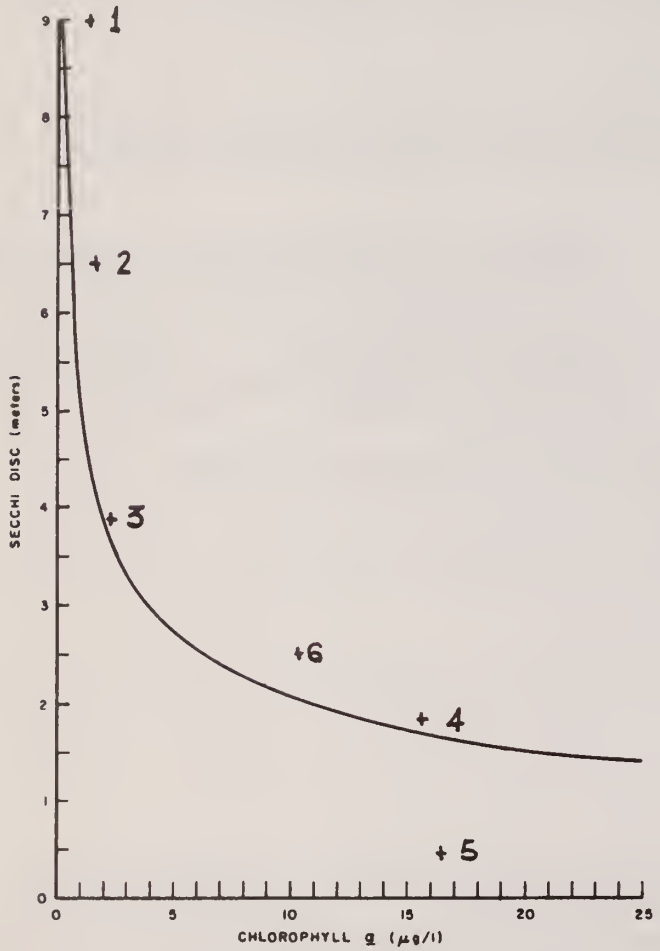
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from George's Lake

Date	Stn. - Main S.D.	Chloro. a
June 11	2.5	2.8
18	2.25	11.0
25	2.5	7.6
July 2	2.0	5.4
9	2.75	19.2
16	2.5	1.0
23	3.0	8.2
30	3.0	20.1
Aug 6	2.5	6.0
13	3.5	24.7
20	3.25	12.0
27	2.5	10.0
Sept 3	2.0	5.8
Mean	2.6	10.3

The Secchi disc readings remained fairly uniform throughout the sampling period, ranging from 2.0 to 3.5 meters, whereas the chlorophyll a concentrations fluctuated from 1.0 to 24.7 ug/l. No trend was apparent in the variations experienced by either of these parameters. Based on the seasonal means for these two parameters, George's Lake would be considered enriched, characterized by a low degree of water transparency and high densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from George's Lake from 1973 to 1978

Year	Stn. S.D.	Chloro. a	Stn. - "0" S.D.	Chloro. a
1971				
1972				
1973	2.2	5.8	-	-
1974	2.3	3.0	2.2	3.9
1975	2.5	10.2	2.0	6.4
1976	2.6	7.2	-	-
1977	2.8	-	-	-
1978	2.6	10.3	-	-



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. George's Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for George's Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in the seasonal mean Secchi disc readings have been minimal and reflect natural fluctuations. Although the mean seasonal chlorophyll a concentrations have varied widely, the overall condition of George's Lake appears stable. It is recommended the participation in this program be continued to determine if this trend continues.

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Ontario

Ministry of the Environment

GIBSON LAKE
Township of Georgian Bay,
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

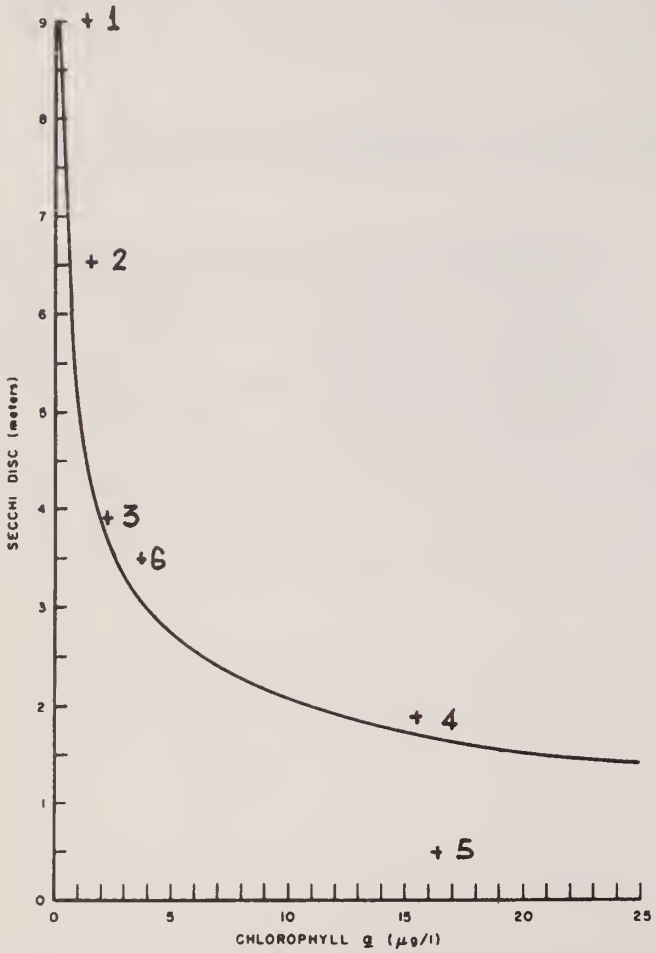
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Gibson Lake

Date	Stn. - Main S.D.	Chloro. a
July 3	2.0	3.9
30	4.0	2.7
Aug 27	3.0	5.7
Sept 24	5.0	-
Oct 15	3.5	2.8
Mean	3.5	3.8

Secchi disc readings varied from 2.0 to 5.0 meters, and the chlorophyll a concentrations varied from 2.7 to 5.7 ug/l during the period sampled. Based on the seasonal means for these two parameters, Gibson Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Gibson Lake in 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978	3.5	3.8
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Gibson Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Gibson Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The enrichment status of Gibson Lake relative to other southern Ontario lakes is illustrated by the above graph. Although slightly more enriched than Balsam Lake, it is considerably removed from such highly enriched water bodies as Lake Scugog. Continued participation in this program is recommended to determine any long-term water quality trends.

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Ontario

Ministry of the Environment

GULL LAKE
Lutterworth Township,
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

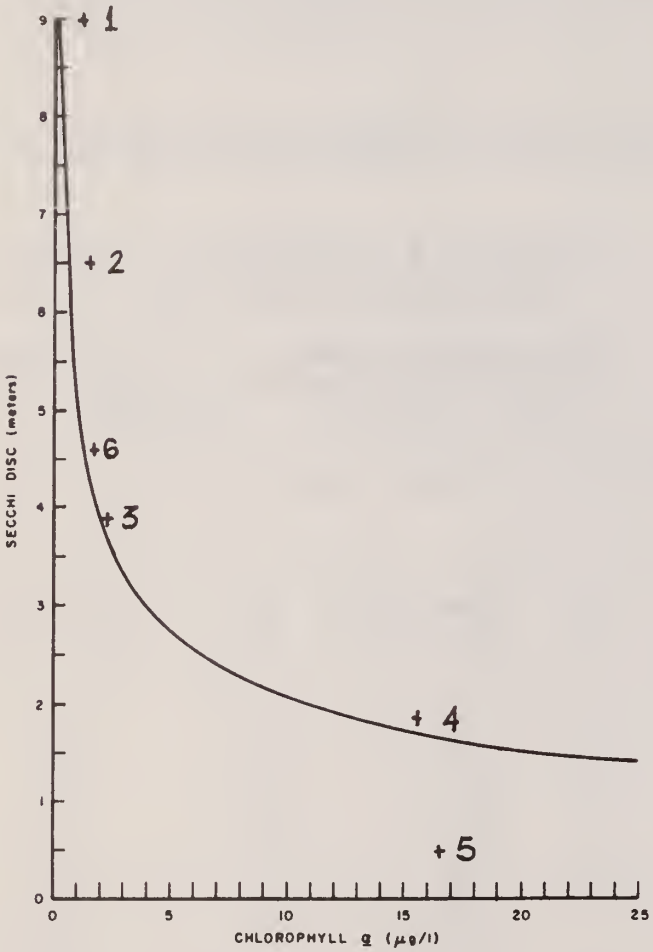
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Gull Lake

Date	Stn. 1 (North End) S.D.	Chloro. a	Stn. 2 (Deep Bay) S.D.	Chloro. a	Stn. 3 (Long Island) S.D.	Chloro.a	Stn. 4 (Miner's Bay) S.D.	Chloro. a
June 24	5.5	1.8	5.3	2.0	5.5	1.8	5.6	1.5
July 3	4.9	1.7	4.9	1.6	4.9	1.5	5.1	1.6
9	2.3	1.6	6.2	2.0	6.3	2.0	6.3	2.1
12	4.7	-	4.5	2.0	-	1.5	4.7	1.6
30	5.5	1.6	5.3	1.5	5.3	1.6	5.2	1.3
Aug 20	5.0	2.5	-	1.9	-	1.9	-	1.6
27	-	1.6	-	-	-	2.3	-	1.5
Sept 4	-	2.1	6.6	3.0	-	2.3	-	2.3
Mean	4.6	1.8	5.5	2.0	5.5	1.9	5.4	1.7

Both the Secchi disc readings and chlorophyll a concentrations remained relatively constant during the period sampled. Based on the seasonal means for these two parameters, all four stations sampled would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae. The degree of water transparency at Stn. 1, is slightly less than at the other three stations sampled.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Gull Lake from 1976 to 1978.

Year	Stn. - 1 S.D.	Stn. - 1 Chloro. a	Stn. - 2 S.D.	Stn. - 2 Chloro. a	Stn. - 3 S.D.	Stn. - 3 Chloro.a	Stn. - 4 S.D.	Stn. - 4 Chloro.a
1971								
1972								
1973								
1974								
1975								
1976	5.4	1.9	3.7	1.5	5.7	2.0	5.5	2.0
1977	4.7	-	-	-	5.8	-	5.4	-
1978	4.6	1.8	5.5	2.0	5.5	1.9	5.4	1.7



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Gull Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Gull Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The variations in the yearly mean Secchi disc readings and chlorophyll a concentrations experienced at Stns. 1, 3 and 4 have been minimal, and reflect natural fluctuations. The overall enrichment status of Gull Lake appears stable, and it is recommended that participation in this program be continued, to determine if this condition persists. The two years of data for Stn. 2 is insufficient to draw any conclusions from.

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Ontario

Ministry of the Environment

HALIBURTON LAKE
Harburn Township,
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

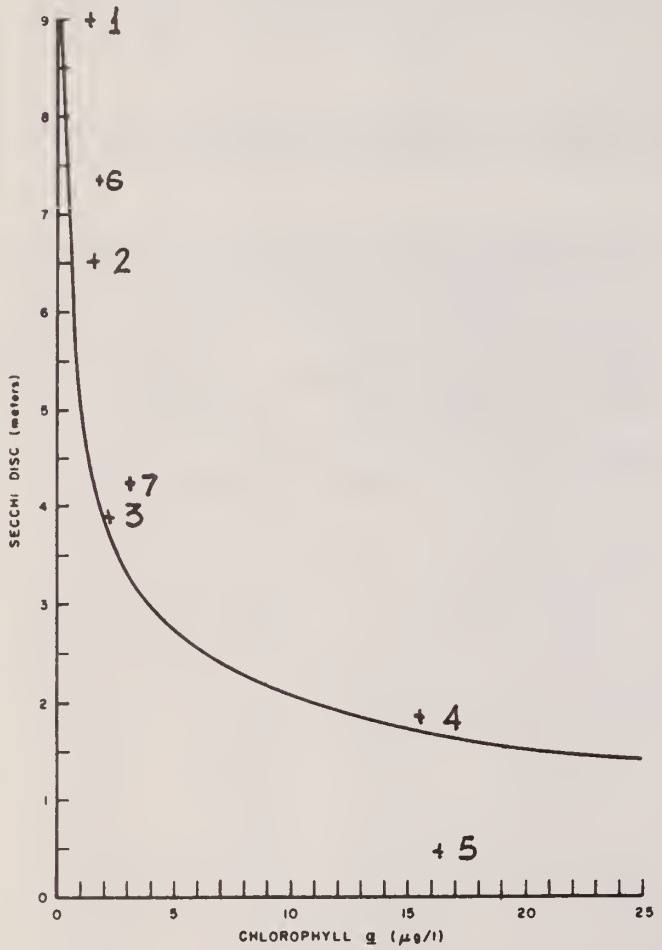
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Haliburton Lake

Date	Stn.-Main S.D.	Stn.-Main Chloro. a	Stn.- South Bay S.D.	Stn.- South Bay Chloro. a	Date	Stn.-Main S.D.	Stn.-Main Chloro. a	Stn. - South Bay S.D.	Stn. - South Bay Chloro. a
May 22	8.0	1.1	4.5	1.7	July 16	6.5	2.0	4.25	3.8
28	7.0	2.1	3.5	3.3	23	7.0	0.5	4.25	3.3
June 4	7.5	2.1	-	-	30	7.5	0.6	4.25	3.6
11	7.0	3.2	4.5	2.6	Aug 7	7.5	1.5	4.25	3.8
18	7.5	1.9	3.8	2.3	13	7.5	3.2	4.5	4.2
25	7.0	1.9	-	-	20	7.5	1.8	4.5	2.7
July 3	-	-	4.0	3.1	27	7.5	1.7	3.75	3.6
5	7.0	1.8	-	-	Sept 4	7.0	2.4	4.0	3.3
9	7.5	2.5	5.0	3.4	Oct 9	-	-	4.0	2.6
Mean						7.3	1.9	4.2	3.2

The variations in the Secchi disc readings at both stations were minimal whereas, the chlorophyll a concentrations varied considerably. No trends are apparent in the variations experienced by either of these parameters. Based on the seasonal means for the two parameters measured, the Main Stn. would be considered unenriched, characterized by a very high degree of water transparency and low densities of suspended algae. Using the same parameters the S. Bay Stn. would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderate densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Haliburton Lake from 1972 to 1978.

Year	Stn. - Main S.D.	Chloro. a	Stn. - S. Bay S.D.	Chloro. a
1971				
*1972	6.3	1.0	3.5	2.7
1973	6.0	1.8	-	-
1974	6.7	1.1	3.8	2.4
1975	6.4	2.5	3.6	3.3
1976	6.0	1.7	4.0	4.7
1977	7.6		4.3	-
1978	7.3	1.9	4.2	3.2
"	* from Dillon (1974)			



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Haliburton Lake (Main) - 1978
7. Haliburton Lake (S. Bay) - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Haliburton Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

It appears, that the yearly variations in the seasonal mean Secchi disc readings and chlorophyll a concentrations reflect natural fluctuations. The overall status of Haliburton Lake appears stable, and it is recommended that participation in this program be continued, to determine if this condition persists.

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Ministry of the Environment

HALLS LAKE
Stanhope Township,
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

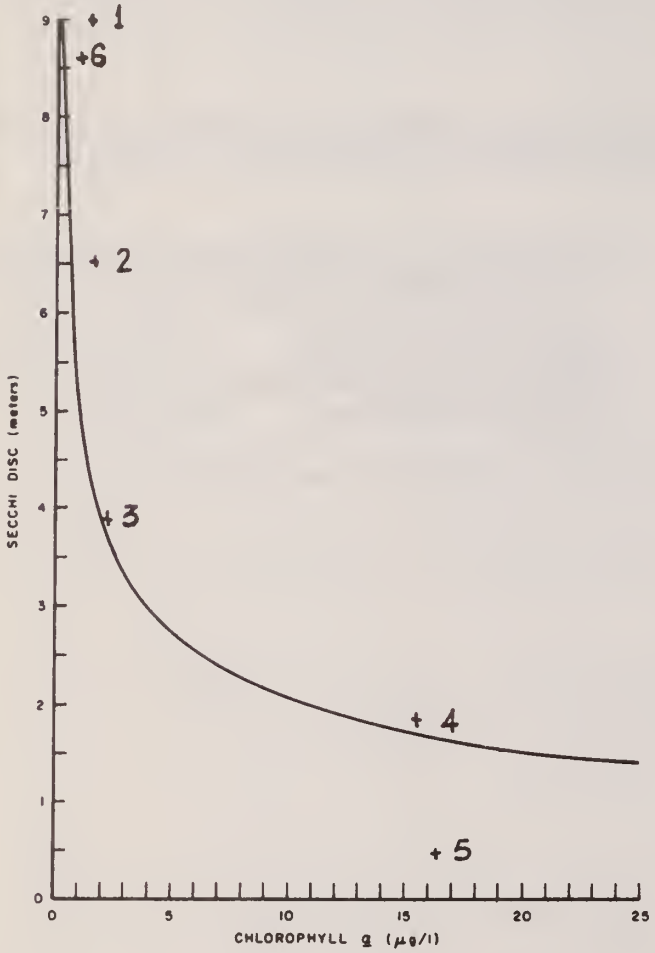
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Halls Lake

Date	Stn.- A S.D.	Chloro. a
May 22	9.1	0.8
June 25	9.1	0.7
July 3	8.5	0.5
7	9.1	0.4
23	7.9	1.2
30	8.2	1.1
Aug 13	9.1	1.0
27	7.6	1.3
Mean	8.6	0.9

The Secchi disc readings varied from 7.6 to 9.1 meters, and the chlorophyll a concentration varied from 0.4 to 1.3 ug/l, during the period sampled. No trends are apparent in the variations experienced by either of these parameters. Based on the seasonal means for these two parameters, Hall's Lake would be considered unenriched, characterized by a very high degree of water transparency and very low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Hall's Lake from 1972 to 1978.

Year	Stn. - A S.D.	Chloro. a
1971		
1972	8.7	0.7
1973	7.8	0.7
1974	7.5	0.4
1975	8.4	0.6
1976	7.5	1.1
1977	8.5	
1978	8.6	0.9



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Hall's Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Hall's Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Since the commencement of this program on Hall's Lake in 1972, the yearly variations in the seasonal mean Secchi disc readings and chlorophyll a concentrations have been minimal, indicating a stable lake condition. Continued participation in this program is recommended, to determine if this trend persists.

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Ontario

HARP LAKE
Town of Huntsville
District Municipality of Muskoka

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Harp Lake

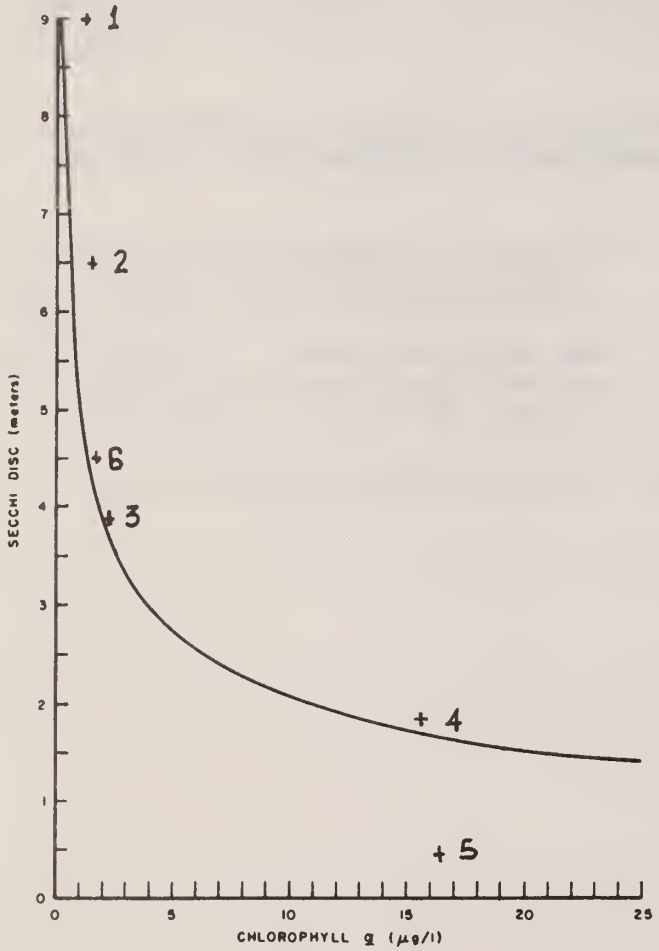
Date	Stn. - Main S.D.	Chloro. a
May 20	4.9	1.4
June 5	4.9	2.2
July 9	4.0	2.2
23	3.7	2.3
Aug 6	5.0	1.3
20	4.7	1.8
Mean	4.5	1.9

The Secchi disc readings varied from 3.7 to 4.9 meters, and the chlorophyll a concentration from 1.3 to 2.3 ug/l during the period sampled. No trends are apparent in the variations experienced by either of these parameters. Based on the seasonal means of these two parameters, Harp Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Harp Lake from 1973 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973	4.0	3.3
1974	3.7	2.1
1975	5.0	3.3
*1976	4.5	2.2
1977	4.8	
1978	4.5	1.9

" * based on 2 samplings



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Harp Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Harp Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in the seasonal mean values for both the Secchi disc readings and chlorophyll a concentrations, as shown in Table 2, reflect natural yearly fluctuations. The overall status of Harp Lake appears stable, and it is recommended that participation in this program be continued, to determine if this condition persists.

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Ontario

Ministry of the Environment

HEAD LAKE
Lexton & Digby Townships
Victoria County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

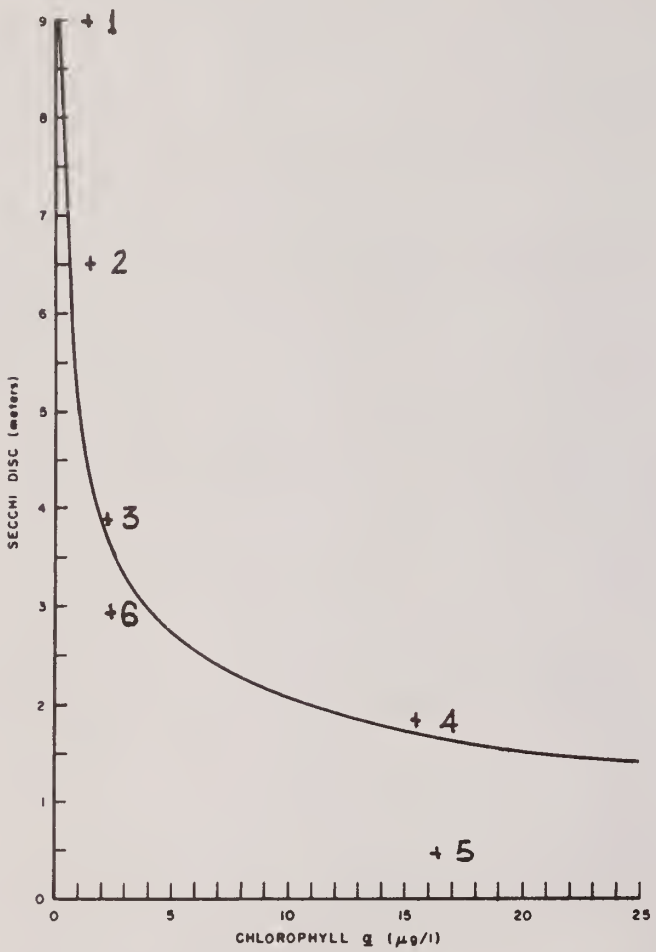
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Head Lake

Date	Stn. Main S.D.	Chloro. a
May 22	3.5	2.5
28	2.5	2.2
June 4	2.5	1.9
11	2.5	2.6
18	2.5	2.5
25	3.5	1.5
July 3	3.0	2.1
16	3.0	2.2
23	2.5	3.1
31	3.25	3.2
Aug 7	2.7	2.9
13	3.5	1.3
20	2.7	1.9
27	3.0	3.6
Spet 4	2.7	4.2
Mean	2.9	2.5

Minor fluctuations in Secchi disc readings and chlorophyll a values occurred during the sampling period. Based on the average values of the two parameters Head Lake can be considered enriched with a moderate algal density.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Head Lake from 1972 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972	3.2	2.8
1973	2.9	3.0
1974	2.8	2.0
1975	2.8	2.7
1976	3.0	2.9
1977	3.3	-
1978	2.9	2.5



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Head Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Head Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The trophic status of Head Lake appears to have been stable over the past seven years. Variations in the values outlined in Table 2 are attributable partly to natural annual fluctuations and do not appear to represent a change in water quality. Continued participation in this excellent sampling program is encouraged to define long-term trends.

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Ontario

Ministry of the Environment

JACK LAKE
Burleigh and Methuen Townships
Peterborough County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Jack Lake

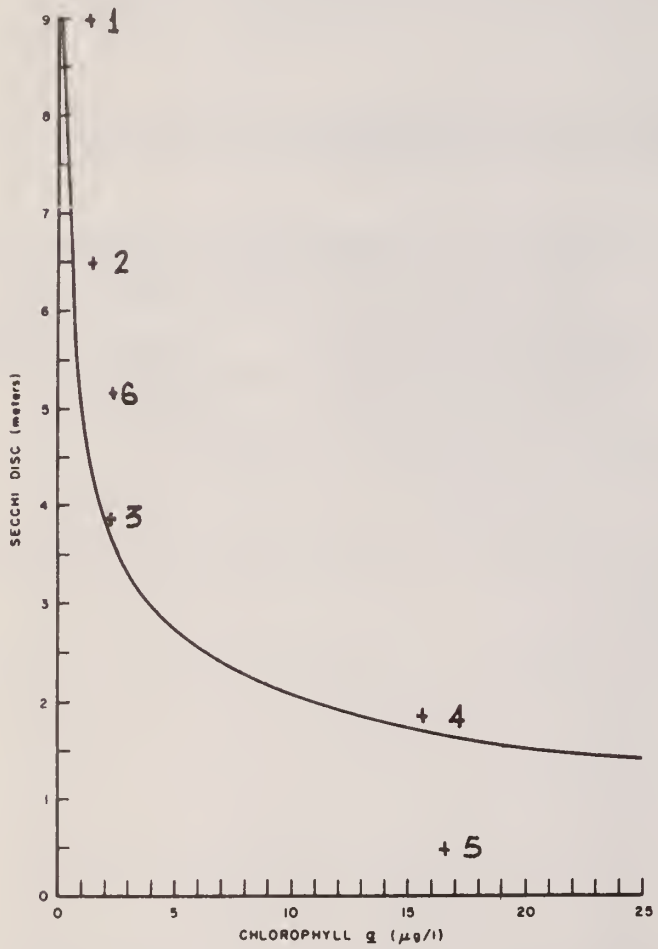
Date	Stn. S.D.	Sharps Bay Chloro. a	Stn. S.D.	Brooks Bay Chloro. a
May 11	6.4	1.1	3.0	2.1
22	4.0	3.4	2.7	2.4
28	4.6	2.3	2.7	5.1
June 18	4.9	1.9	2.7	5.1
July 3	2.1	3.3	2.7	5.0
9	6.1	4.0	3.4	5.7
Aug 7	4.6	2.3	4.3	3.0
13	5.2	3.1	3.3	3.3
20	4.6	2.0	4.3	5.4
Sept 4	4.6	2.5	4.3	3.8
Mean	4.7	2.6	3.3	3.9

Based on average Secchi disc readings and chlorophyll a values Sharpe Bay and Brooks Bay are considered modeately enriched with moderate algal densities. Brooks Bay is comparatively more enriched than Sharpe Bay.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Jack Lake from 1971 to 1978.

Year	Stn. - Sharp's Bay S.D.	Chloro. a	Stn. - Brook's Bay S.D.	Chloro. a
1971			3.9	2.6
1972				
1973				
1974	4.4	1.4	3.4	1.9
1975				
1976	4.5	2.9	3.4	3.7
1977	4.7		3.5	
1978	4.7	2.6	3.3	3.9
"				
1978 *	5.2	2.6	3.8	3.4

* mean values from MOE/7 Links Water Quality Survey



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Jack Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Jack Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The Secchi disc values of both Sharpe and Brook's Bay found in Table 2 fluctuate very little from year to year, however, the chlorophyll a values may be increasing. Continued participation in this excellent sampling program is encouraged to define long-term trends.

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Ontario

Ministry of the Environment

KASHAGAWIGAMOG LAKE
Dysart and Minden Townships
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Kashagawigamog Lake

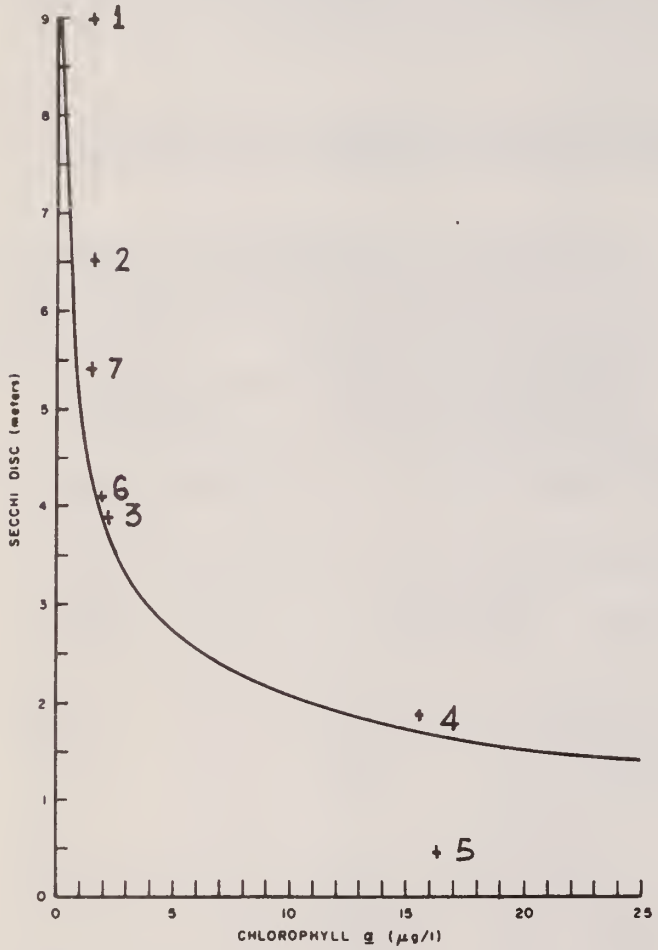
Date	Stn. -South S.D.	Stn. -South Chloro. a	Stn. - North S.D.	Stn. - North Chloro.a	Date	Stn.-South S.D.	Stn.-South Chloro. a	Stn. - North S.D.	Stn. - North Chloro. a
May 22	4.5	0.8	-	-	July 23	4.0	2.9	3.7	2.2
28	5.5	0.8	-	-	30	5.5	2.0	-	-
June 4	6.0	1.4	-	-	Aug 7	4.5	2.4	4.0	2.0
11	5.0	1.2	4.0	1.4	13	5.5	-	-	-
18	5.5	1.4	-	-	20	5.5	1.5	4.6	1.0
25	7.0	1.5	-	-	27	6.5	1.4	-	-
July 3	4.0	3.3	4.3	2.9	Sept 4	6.5	1.6	-	-
10	5.5	1.7	-	-	Oct 1	6.0	0.3	-	-
16	-	-	3.8	1.3					
Mean						5.4	1.6	4.1	1.8

The variation in Secchi disc readings was greater at the S. Kashagawigamog Stn. than at the North Stn.; a difference which has also been noted in previous years. No trends are apparent, at either station, in the variations experienced by the Secchi disc readings or chlorophyll a concentrations during the period sampled. Based on the seasonal means of these two parameters, North Kashagawigamog would be considered moderately enriched, characterized by a moderate degree of water transparency and low densities of suspended algae. Using the same parameters, South Kashagawigamog would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Kashagawigamog Lake from 1972 to 1978.

Year	Stn. - North S.D.	Chloro. a	Stn. - South S.D.	Chloro. a
1971				
*1972	4.2	4.7		
1973	4.6	2.0	4.5	1.7
1974	4.4	1.4	4.2	1.5
1975	4.9	1.7	5.2	1.1
1976	4.0	2.7	4.5	1.3 **
1977	4.9		5.6	
1978	4.1	1.8	5.4	1.6

* lake average
** based on two samplings



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Kashagawigamog (North) - 1978
7. Kashagawigamog (South) - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Kashagawigamog Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in the seasonal mean values for both the Secchi disc readings and chlorophyll a concentrations, as shown in Table 2, reflect natural yearly fluctuations. The overall status of Kashagawigamog Lake appears stable, and it is recommended that participation in this program be continued, to determine if this condition persists.

For additional copies of this report, please contact:
Ontario Ministry of the Environment, Central Region, 150 Ferrand Drive, Don Mills, Ontario, M3C 3C3 (416) 424-3000, Att'n. Mr. Dhan Sharma

Ontario

Ministry
of the
Environment

LAKE OF BAYS
Township of Lake of Bays,
District Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

	Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m		high algal densities	4 ug/l or more
moderately enriched	3-5 m		moderate algal densities	2-4 ug/l
unenriched	5 m or more		low algal densities	0-2 ug/l

Table 1 on the attached page contains the Secchi disc and chlorophyll a data collected from the seven stations monitored in 1978.

No trends are evident in the variations experienced by either the Secchi disc readings or chlorophyll a concentrations. Based on the seasonal mean values for these two parameters, Lake of Bays would be considered unenriched, characterized by a very high degree of water transparency and low densities of suspended algae. The overall status of the lake is comparable to that of Lake Joseph, one of the least enriched lakes in Muskoka.

The status of the lake is not uniform throughout, as evidenced by the variations between the stations monitored, however, these variations are not significant in terms of the lake's overall quality. Stn. 2, Trading Bay appears to be the least enriched area of the lake while Stn. 4 and Stn. 12 were the most enriched areas sampled.

Table 2 on the attached page summarizes the 1977 and 1978 Secchi disc and chlorophyll a data. While two years of data is insufficient to base any conclusions on concerning trends in lake quality, there does not appear to have been any significant change in the quality of the lake from 1977 to 1978. It is recommended that participation in this program be continued in order that sufficient data may be obtained to define long-term lake quality trends.

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Table 1: Secchi disc (m) and Chlorophyll a (ug/l) data for Lake of Bays

Date	Stn. 2		Stn. 4		Stn. 5		Stn. 6		Stn. 7		Stn. 10		Stn. 12	
	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a
May 21					7.0	0.9								
May 22			6.0	0.7			8.0	0.9						
July 3	8.0	0.8		1.1	6.5	1.1	7.0	0.9	5.9	0.9	6.5	1.2	5.0	0.8
July 16			6.0	0.9	7.0	1.2	6.0	1.6	6.1	1.0	7.5	4.2	7.5	1.2
July 30	9.5	1.5	7.0	0.8	8.5	1.0	7.5	1.7	8.2	0.7	7.5	1.4	8.5	1.4
Aug 7			6.0	1.8	8.0	1.7	8.0	1.9	7.6	1.3	9.0	1.2	6.0	
Aug 13	7.5	1.3												
Aug 20			6.0	1.0	7.0	1.2			7.7	1.0	8.0	1.0	6.0	1.2
Sept 3	7.0	1.6	6.0	1.0	7.0	1.2			7.6	1.2	7.5	1.0	4.5	1.0
Sept 8	___	___	___	___	7.0	1.8	6.0	2.0	4.9	1.4	6.0	1.8	4.5	1.5
Mean	8.0	1.3	6.2	1.0	7.2	1.3	7.1	1.5	6.9	1.1	7.4	1.7	6.0	1.2

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected in 1977 and 1978

Year	Stn. 2		Stn. 4		Stn. 5		Stn. 6		Stn. 7		Stn. 10		Stn. 12	
	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a
1977	7.5		6.5		7.0		6.3		7.4		6.1		6.5	
1978	8.0	1.3	6.2	1.0	7.2	1.3	7.1	1.5	6.9	1.1	7.4	1.7	6.0	1.2

Ontario

Ministry of the Environment

KENNAWAY LAKE
Harcourt Township,
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Kennaway Lake

Date	Stn. - Main S.D.	Chloro. a
June 11	4.0	1.2
18	3.5	2.0
25	3.5	1.8
July 3	3.75	1.9
9	3.75	2.1
23	3.0	2.3
30	4.5	2.7
Aug 7	3.5	2.6
13	3.75	2.2
20	3.5	3.8
27	3.5	3.3
Sept 4	3.5	3.0
Mean	3.6	2.4

The Secchi disc readings varied from 3.0 to 4.5 meters and the chlorophyll a concentration varied from 1.2 to 3.8 ug/l during the period sampled. No trends are apparent in the fluctuations experienced by either of these parameters. Based on the seasonal means for these two parameters, Kennaway Lake would be considered moderately enriched, characterized by moderate degree of water transparency and moderate densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Kennaway Lake from 1973 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973	4.1	3.3
1974	3.6	1.9
1975	3.8	2.7
1976	4.2	3.8
1977	4.7	-
1978	3.6	2.4

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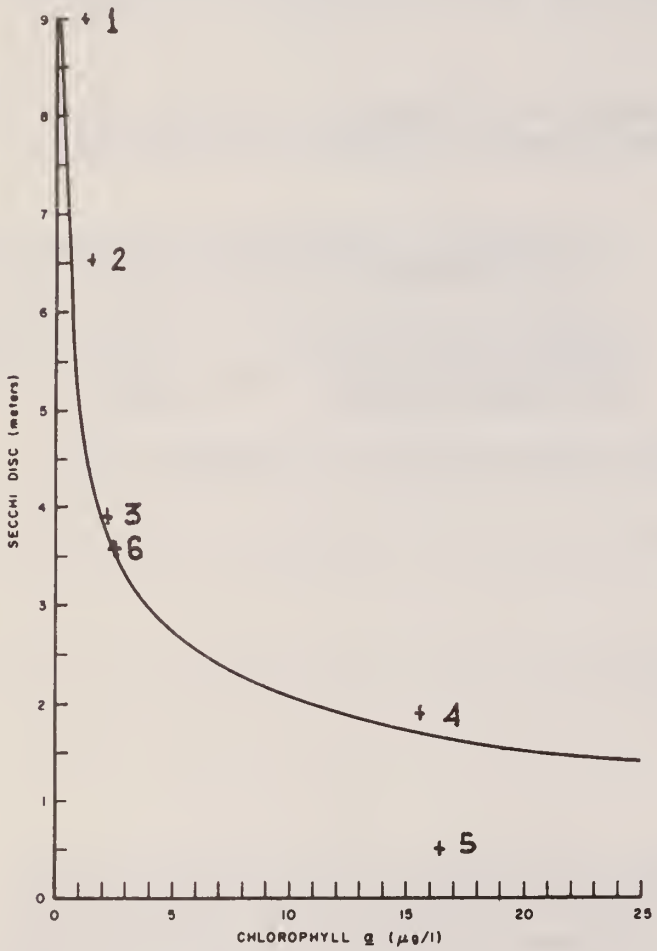

1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Kennaway Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Kennaway Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Based on the historical record of seasonal mean Secchi disc readings and chlorophyll a concentrations, as shown in Table 2, it is suggested that the decreased water transparency in 1978, reflects a natural fluctuation, and not an alteration in the lake's quality. Continued participation in this program is recommended, to monitor future water quality trends.

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Ontario

Ministry of the Environment

KENNISIS LAKE
Havelock and Guilford Townships
Provisional County of ~~Haliburton~~

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

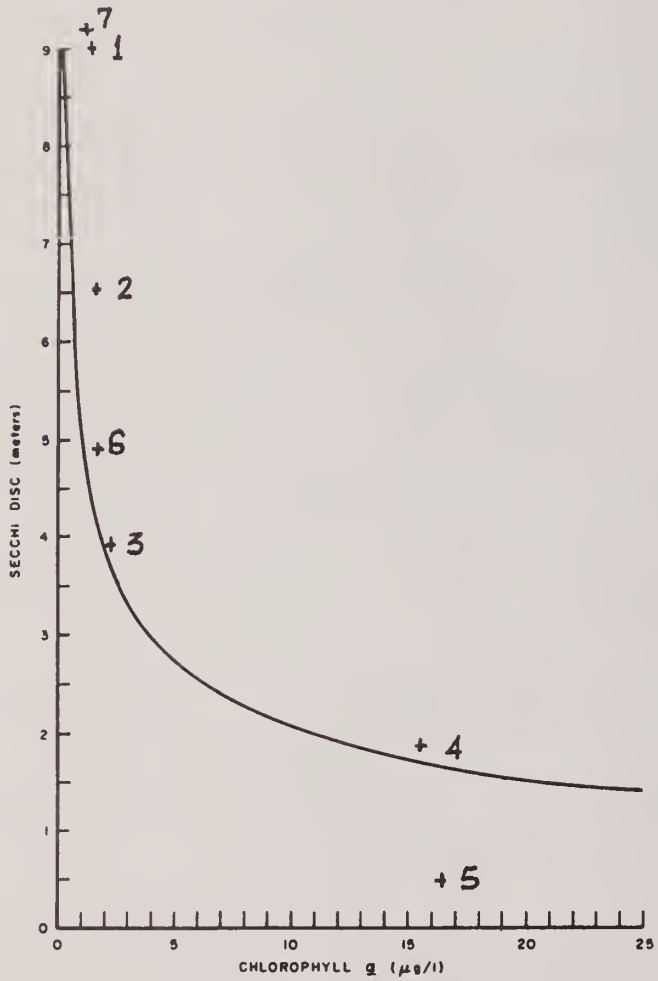
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Kennisis Lake

Date	Stn. - A S.D.	Stn. - A Chloro. a	Stn. - B S.D.	Stn. - B Chloro. a	Stn. - C S.D.	Stn. - C Chloro. a
June 18	8.0	1.0	10.0	1.0	10.0	1.1
July 3	9.0	1.1	9.0	0.9	8.5	0.9
9	10.0	0.7	11.0	1.0	10.5	1.2
30	10.0	1.0	10.0	1.0	10.0	0.9
Aug 13	9.0	0.9	9.5	0.9	9.5	0.9
20	10.0	1.0	10.0	0.9	10.0	0.9
27	9.0	1.1	9.0	1.0	9.0	0.9
Mean	9.3	1.0	9.8	1.0	9.6	1.0

Both the Secchi disc readings, and chlorophyll a concentrations experienced minimal fluctuations during the period sampled. Based on the seasonal means, for these two parameters, there is no discernable difference in water quality between the three stations sampled. Kennisis Lake is a very unenriched lake, characterized by extremely high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Kennisis Lake from 1972 to 1978

Year	Stn. - A S.D.	Stn. - A Chloro. a	Stn. - B S.D.	Stn. - B Chloro. a	Stn. - C S. D.	Stn. - C Chloro. a
1971						
1972	6.8	1.0	9.2	0.9	9.0	0.9
1973	7.8	0.7	9.5	0.8	9.5	0.8
1974	7.7	0.8	8.6	0.5	8.6	0.4
1975	9.5	1.0	10.0	0.6	10.5	0.8
1976	8.2	1.4	9.3	1.4	9.6	1.2
1977	9.4		9.5		9.6	
1978	9.3	1.0	9.8	1.0	9.6	1.0



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Shadow Lake - 1978
7. Kennisis Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Kennisis Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The 1978 seasonal mean values for both the Secchi disc readings and chlorophyll a concentrations do not vary significantly from previous years, as shown in Table 2. The overall condition of Kennisis Lake appears stable, and it is recommended that participation in this program be continued, to determine if this condition persists.

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Ontario

Ministry of the Environment

LAKE JOSEPH
Township of Muskoka Lakes
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

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Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Lake Joseph

Date	Stn. - A (Hallam) S.D.	Chloro. a	Stn. - B (Hallam) S.D.	Chloro. a
July 10	9.3	1.2	9.8	1.1
18	9.0	1.0	8.6	1.0
25	8.8	0.9	8.2	1.0
Aug 1	8.6	-	8.6	-
8	8.0	-	7.6	-
15	8.2	1.3	8.2	1.0
22	8.0	-	8.2	-
30	7.8	1.2	7.6	1.5
Mean	8.5	1.1	8.4	1.1

The largest Secchi disc reading, at both stations, was measured on July 10, and the poorest reading on August 30. The variations in the chlorophyll a concentrations at both stations was minimal. Based on the seasonal means for these two parameters, both stations would be considered unenriched, characterized by a very high degree of water transparency and low densities of suspended algae. There is no discernable difference in quality between the two stations.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Lake Joseph from 1970 to 1978.

Year	Stn. - J7 S.D.	Chloro. a	Stn. - J8 S.D.	Chloro. a	Stn. - A (Hallam) S.D.	Chloro. a	Stn. B (Hallam) S.D.	Chloro. a
* 1970	8.1	1.0	5.8	2.5				
1971								
1972								
1973								
1974	7.0	0.5						
1975								
1976	8.2	1.4	6.2	2.2				
1977	8.3		6.2		8.4	-	8.6	-
1978	-		-		8.4	1.1	8.5	1.1

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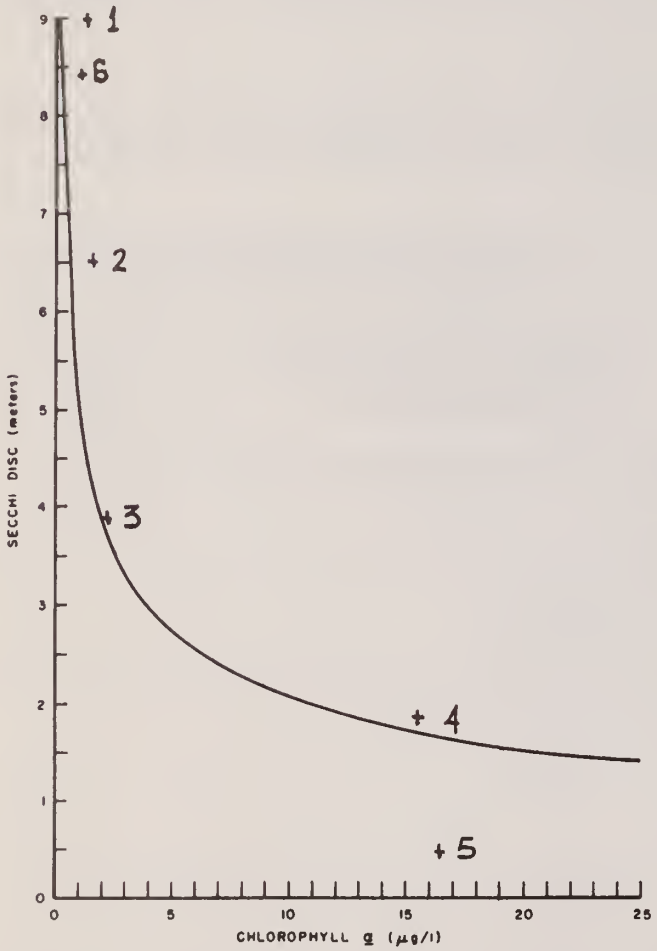
* MOE data



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Lake Joseph - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Joseph and a number of other well-known recreational lakes in the province. All data are seasonal means.

Based on the seasonal mean values for the Secchi disc readings and chlorophyll a concentrations, as shown in Table 2, there has been no variation in quality at Stn. A and B during the last two years. Continued participation in this program is recommended, to determine if this trend continues.

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Ontario

Ministry
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LAKE OF BAYS
Township of Lake of Bays,
District Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

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Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

	Secchi disc (S.D.) (meters - m)		Chlorophyll a concentration (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m		high algal densities	4 ug/l or more
moderately enriched	3-5 m		moderate algal densities	2-4 ug/l
unenriched	5 m or more		low algal densities	0-2 ug/l

Table 1 on the attached page contains the Secchi disc and chlorophyll a data collected from the seven stations monitored in 1978.

No trends are evident in the variations experienced by either the Secchi disc readings or chlorophyll a concentrations. Based on the seasonal mean values for these two parameters, Lake of Bays would be considered unenriched, characterized by a very high degree of water transparency and low densities of suspended algae. The overall status of the lake is comparable to that of Lake Joseph, one of the least enriched lakes in Muskoka.

The status of the lake is not uniform throughout, as evidenced by the variations between the stations monitored, however, these variations are not significant in terms of the lake's overall quality. Stn. 2, Trading Bay appears to be the least enriched area of the lake while Stn. 4 and Stn. 12 were the most enriched areas sampled.

Table 2 on the attached page summarizes the 1977 and 1978 Secchi disc and chlorophyll a data. While two years of data is insufficient to base any conclusions on concerning trends in lake quality, there does not appear to have been any significant change in the quality of the lake from 1977 to 1978. It is recommended that participation in this program be continued in order that sufficient data may be obtained to define long-term lake quality trends.

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Table 1: Secchi disc (m) and Chlorophyll a (ug/l) data for Lake of Bays

Date	Stn. 2		Stn. 4		Stn. 5		Stn. 6		Stn. 7		Stn. 10		Stn. 12	
	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a
May 21					7.0	0.9								
May 22			6.0	0.7			8.0	0.9						
July 3	8.0	0.8		1.1	6.5	1.1	7.0	0.9	5.9	0.9	6.5	1.2	5.0	0.8
July 16			6.0	0.9	7.0	1.2	6.0	1.6	6.1	1.0	7.5	4.2	7.5	1.2
July 30	9.5	1.5	7.0	0.8	8.5	1.0	7.5	1.7	8.2	0.7	7.5	1.4	8.5	1.4
Aug 7			6.0	1.8	8.0	1.7	8.0	1.9	7.6	1.3	9.0	1.2	6.0	
Aug 13	7.5	1.3												
Aug 20			6.0	1.0	7.0	1.2			7.7	1.0	8.0	1.0	6.0	1.2
Sept 3	7.0	1.6	6.0	1.0	7.0	1.2			7.6	1.2	7.5	1.0	4.5	1.0
Sept 8	___	___	___	___	7.0	1.8	6.0	2.0	4.9	1.4	6.0	1.8	4.5	1.5
Mean	8.0	1.3	6.2	1.0	7.2	1.3	7.1	1.5	6.9	1.1	7.4	1.7	6.0	1.2

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected in 1977 and 1978

Year	Stn. 2		Stn. 4		Stn. 5		Stn. 6		Stn. 7		Stn. 10		Stn. 12	
	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a	S.D.	Chl. a
1977	7.5		6.5		7.0		6.3		7.4		6.1		6.5	
1978	8.0	1.3	6.2	1.0	7.2	1.3	7.1	1.5	6.9	1.1	7.4	1.7	6.0	1.2

Ontario

Ministry of the Environment

LAKE ROSSEAU
Township of Muskoka Lakes
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Lake Rosseau

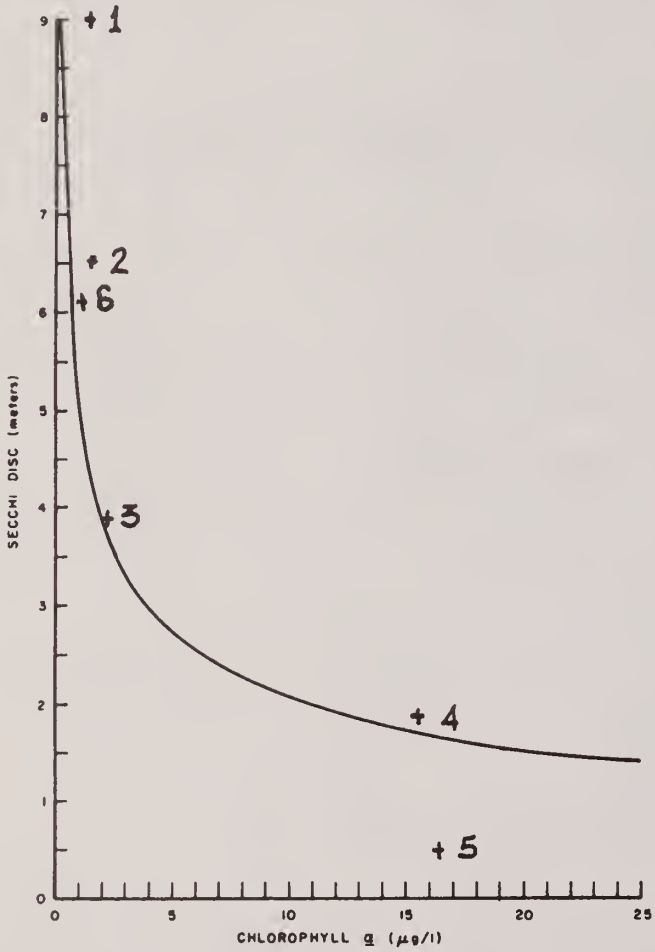
Date	Stn. - R5 S.D.	Stn. - R5 Chloro. a	Stn. -R6 S.D.	Stn. -R6 Chloro. a
July 2	6.0	1.6	6.0	1.0
30	6.5	1.6	6.0	1.6
Sept 4	6.0	1.3	6.5	2.0
Mean	6.2	1.5	6.2	1.5

Since samples were collected on only three occasions, it is difficult to obtain a reasonably accurate assessment of Lake Rosseau's trophic status. Based on the means of the available data, Lake Rosseau would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Lake Rosseau from 1970 to 1978.

Year	Stn. - R5 S.D.	Chloro. a	Stn. - R6 S.D.	Chloro. a
1970	6.3	1.7	5.3	1.5
1971				
1972				
1973				
1974	6.4	0.7		
1975				
* 1976	6.1	1.8		
1977	4.8		4.8	
1978	6.2	1.5	6.2	1.5

" * based on 1 sample



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Lake Rosseau - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Rosseau and a number of other well-known recreational lakes in the province. All data are seasonal means.

Although the overall condition of Lake Rosseau appears stable, the available data base is insufficient to draw definite conclusions from. It is recommended, that if participation in this program is continued, then the sampling frequency should be increased, to improve the reliability of the data.

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Ministry of the Environment

LAKE VERNON
Town of Huntsville,
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Lake Vernon

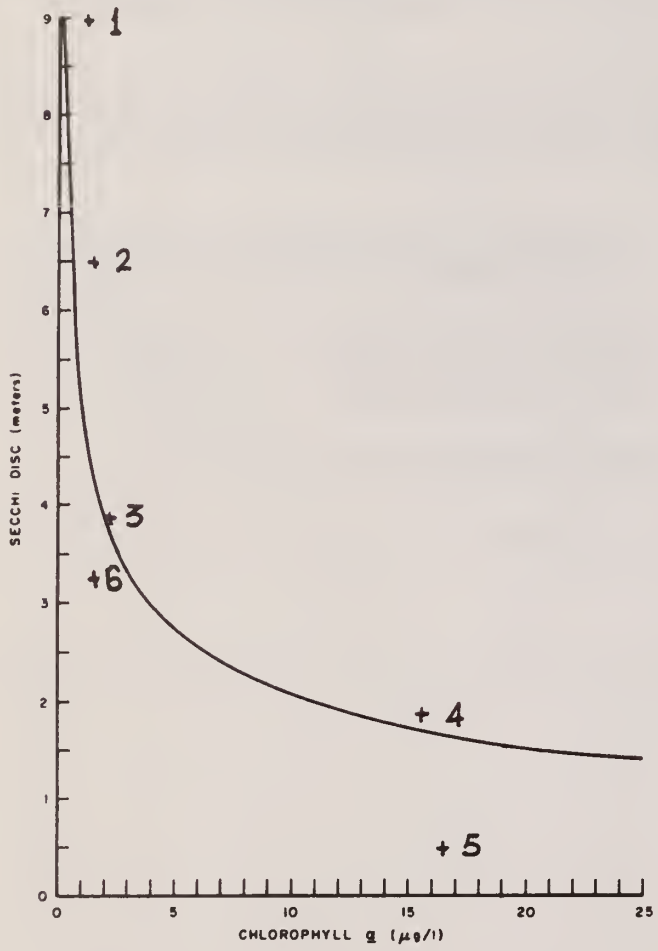
Date	Stn. - Main S.D.	Chloro. a
June 11	3.0	1.4
24	3.75	-
25	3.0	1.7
July 9	3.0	1.7
Aug 27	3.75	1.6
Oct 7	3.0	1.5
Mean	3.2	1.6

Both the Secchi disc readings and chlorophyll a concentrations experienced only minimal variations during the period sampled. Based on the seasonal means for these two parameters, Lake Vernon would be considered moderately enriched, characterized by a moderate degree of water transparency and low densities of suspended algae. The colouration of Lake Vernon results in a lower degree of water transparency, than would be encountered in a clear water lake having similar algal densities. The chlorophyll a data for June 24 was withdrawn due to anomalies.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Lake Vernon in 1974, 1975, 1977 and 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
* 1974	4.0	0.7
1975	2.9	1.8
1976	-	-
1977	3.7	
1978	3.2	1.6
"		

* based on one sampling



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Lake Vernon - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Lake Vernon and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in season Secchi disc readings and chlorophyll a concentrations since 1975, are probably due to natural fluctuations and not an actual alteration in the lake's water quality. Continued participation in this program is recommended to determine long-term water quality trends.

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Ontario

Ministry of the Environment

LEECH LAKE
Town of Bracebridge
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

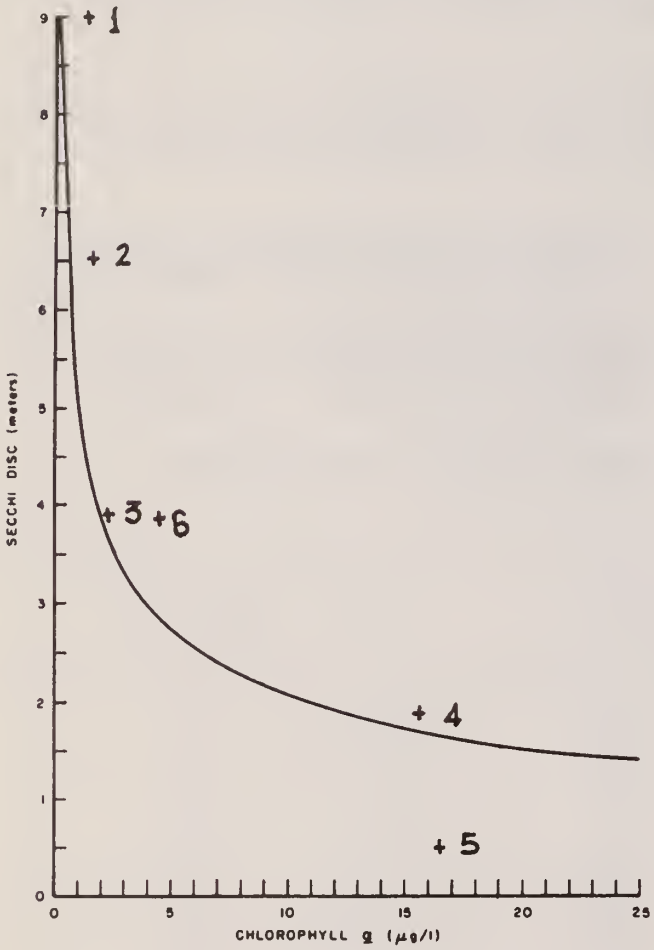
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Leech Lake

Date	Stn. -A (N. Bay) S.D.	Chloro. a	Stn. - B (E. Bay) S.D.	Chloro. a	Stn. - C (W. Bay) S.D.	Chloro. a
June 4	3.15	5.3	4.0	5.4	4.5	4.4
11	4.0	2.2	4.5	1.6	4.5	2.0
July 3	4.0	4.2	4.0	4.1	4.0	6.1
9	4.0	5.6	4.0	6.3	4.0	7.4
16	3.5	6.9	5.0	6.7	3.5	6.6
Aug 7	3.5	4.3	3.75	4.4	3.5	6.2
20	4.25	2.9	3.75	3.2	4.25	2.4
Sept 18	3.75	4.9	3.5	3.5	3.75	5.5
Mean	3.8	4.5	4.1	4.4	4.0	5.1

The Secchi disc readings exhibited only minimal variation during theperiod sampled, whereas the chlorophyll a concentrations fluctuated considerably. Based on the seasonal means for these two parameters, Leech Lake would be considered enriched, characterized by high densities of suspended algae and a moderate degree of water transparency. The transparency of Leech Lake is greater than morally encountered in lakes with similar densities of suspended algae. The variation in water quality between the three stations sampled is minimal.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Leech Lake from in 1977 and 1978

Year	Stn. - A (N. Bay) S.D.	Chloro. a	Stn. - B (E. Bay) S.D.	Chloro. a	Stn. C (W. Bay) S.D.	Chloro. a
1971						
1972						
1973						
1974						
1975						
1976						
1977	5.4	-	5.0	-	5.4	-
1978	3.8	4.5	4.1	4.4	4.0	5.1
"						



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Leech Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Leech Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The two years of data, shown in Table 2, is insufficient to base conclusions on concerning water quality trends. It is strongly recommended that participation in this program be continued, in order to determine any long-term trends in the quality of Leech Lake.

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Ministry of the Environment

LITTLE KENNISIS LAKE
Havelock Township,
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

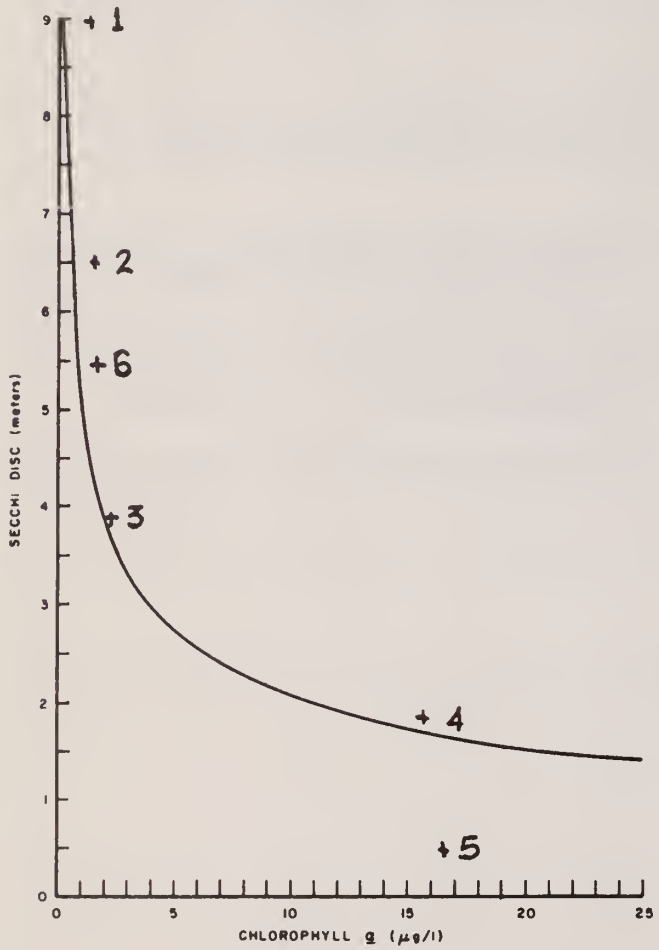
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Little Kennisis Lake

Date	Stn. - Main S.D.	Chloro. a
June 18	5.5	1.2
July 3	4.0	1.3
9	4.5	1.3
30	5.5	1.1
Aug 13	6.0	1.9
20	7.0	1.3
27	6.0	1.4
Mean	5.5	1.4

The Secchi disc readings varied from 4.5 to 7.0 meters, and the chlorophyll a concentration varied from 1.1 to 1.9 ug/l during the period sampled. There were no trends to the variations experienced by either of these parameters. Based on the seasonal means for these two parameters, Little Kennisis Lake would be considered moderately enriched characterized by a high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Little Kennisis Lake from 1972 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972	4.5	1.6
1973	4.8	1.1
1974	5.3	1.1
1975	5.5	1.0
1976	5.3	2.0
1977	6.3	-
1978	5.5	1.4



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Little Kennisis Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Little Kennisis Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in the seasonal mean Secchi disc readings and chlorophyll a concentrations outlined in Table 2 are primarily the result of natural annual fluctuations and do not appear to represent an alteration of the lake's overall quality. The condition of Little Kennisis Lake appears stable, and it is recommended that participation in this program be continued, to determine if this trend continues.

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Ministry of the Environment

Central Region

LITTLE STRAGGLE LAKE
Harcourt Township,
Provisional County of Haliburton

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

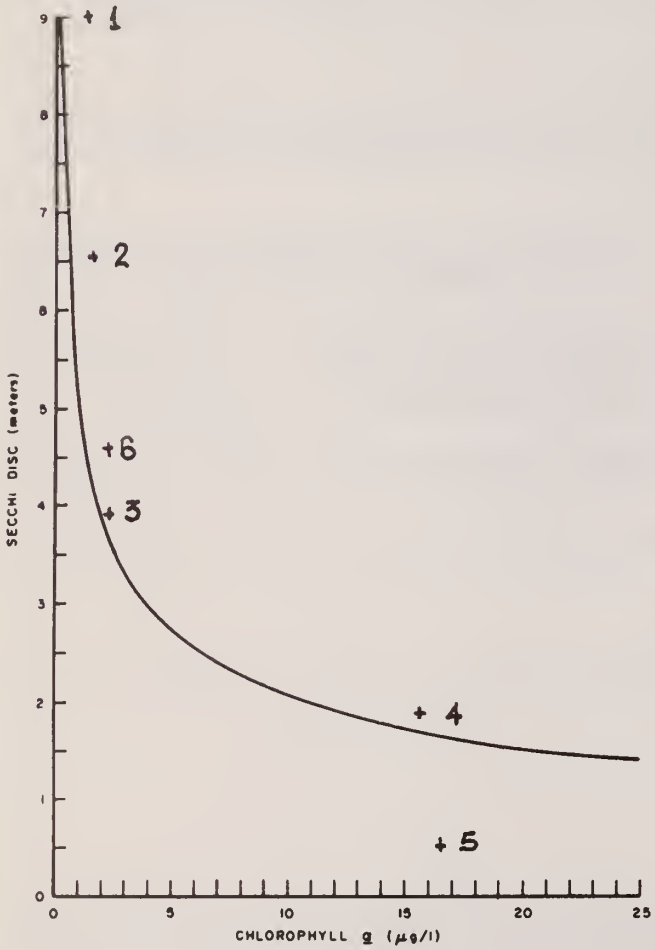
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Little Straggle Lake

Date	Stn. - Main S.D.	Chloro. a
May 28	4.0	1.3
June 11	6.0	2.5
18	4.0	2.6
25	4.5	2.4
July 9	-	2.8
16	4.75	2.4
23	5.0	2.7
30	5.0	3.2
Aug 13	5.0	3.1
20	4.0	2.2
Spet 4	4.0	1.4
Mean	4.6	2.4

The Secchi disc readings varied from 4.0 to 6.0 meters, and the chlorophyll a concentration varied from 1.3 to 3.2 ug/l during the period sampled. No trends are apparent in the variations exhibited by either of these parameters. Based on the season mean values for these two parameters, Little Straggle Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Little Straggle Lake from 1973 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973	3.8	2.9
1974	3.6	1.6
1975	5.3	2.4
1976	4.1	2.2
1977	5.3	
1978	4.6	2.4
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Little Straggle Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Little Straggle Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in the seasonal mean Secchi disc readings and chlorophyll a concentrations shown in Table 2, are primarily attributable to natural fluctuations, and do not represent an alteration in the water quality of Little Straggle Lake. It is recommended, that participation in this program be continued, to determine if this trend persists.

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Ontario

Ministry of the Environment

LONG LAKE
Monmouth Township
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

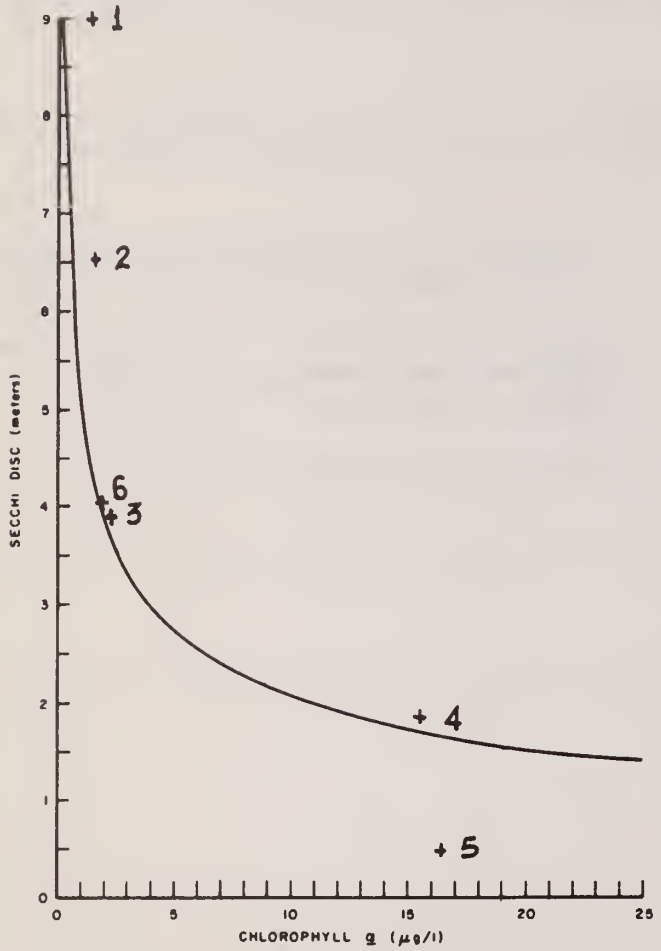
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Long Lake

Date	Stn. - Main S.D.	Chloro. a
May 21	3.0	1.0
July 2	4.6	2.7
9	4.5	2.5
16	4.0	1.2
23	3.5	2.0
Sept 4	4.5	1.6
Mean	4.0	1.8

The Secchi disc readings varied from 3.0 to 4.5 meters, and the chlorophyll a concentrations varied from 1.0 to 2.7 ug/l. No trends are apparent in the fluctuations experienced by either of these parameters. Based on the seasonal means for these two parameters, Long Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Long Lake from 1976 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976	3.8	2.3
1977	3.8	
1978	4.0	1.8
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Long Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Long Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The season mean Secchi disc readings and chlorophyll a concentrations have remained almost constant, since commencement of this program on Long Lake in 1976, indicating a stable lake condition. It is recommended that participation in this program be continued to determine if this trend continues.

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Ontario

LONG LAKE
Township of Muskoka Lakes
District Municipality of Muskoka

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

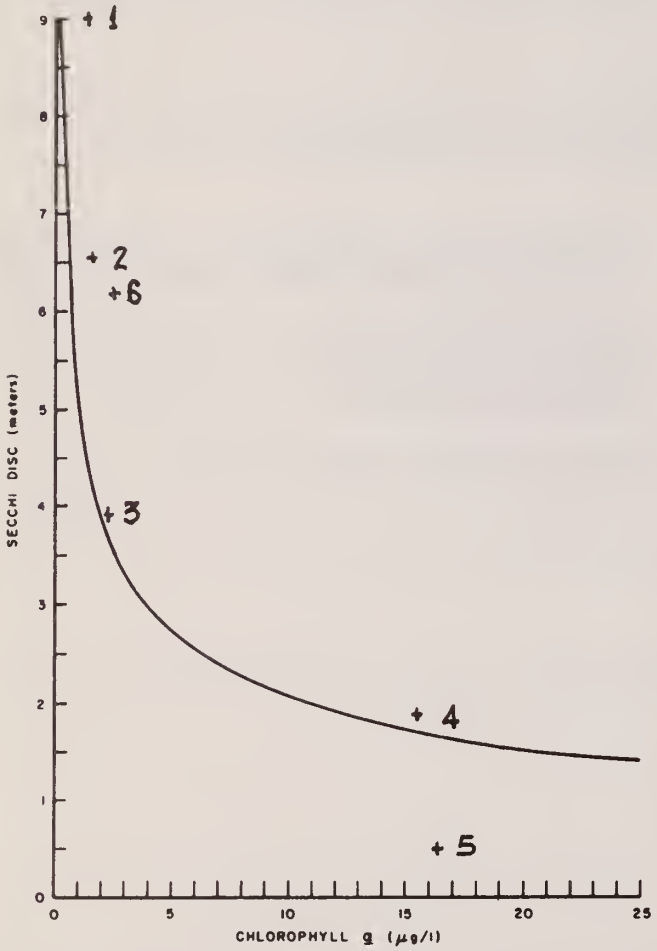
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Long Lake

Date	Stn. - Main S.D.	Chloro. a
July 23	6.0	-
Aug 7	6.25	2.8
20	6.25	2.3
Sept 4	6.25	2.2
Mean	6.2	2.4

Since samples were collected on only four occasions in 1978, it is difficult to obtain even a reasonably accurate assessment of Long Lake's trophic status. Based on the available data, the lake would be considered unenriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Long Lake from 1976 to 1978

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976	5.5	1.9
1977	5.2	-
1978	6.2	2.4



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Long Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Long Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in the seasonal mean Secchi disc reading and chlorophyll a concentration are primarily attributable to natural fluctuations and do not represent an alteration of the lake's quality. It is recommended, that participation in this program be continued, to determine if this trend persists.

For additional copies of this report, please contact:
Ontario Ministry of the Environment, Central Region, 150 Ferrand Drive, Don Mills, Ontario, M3C 3C3 (416) 424-3000, Att'n. Mr. Dhan Sharma

Ontario

LONG LAKE
Dudley Township,
Provisional County of Haliburton

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

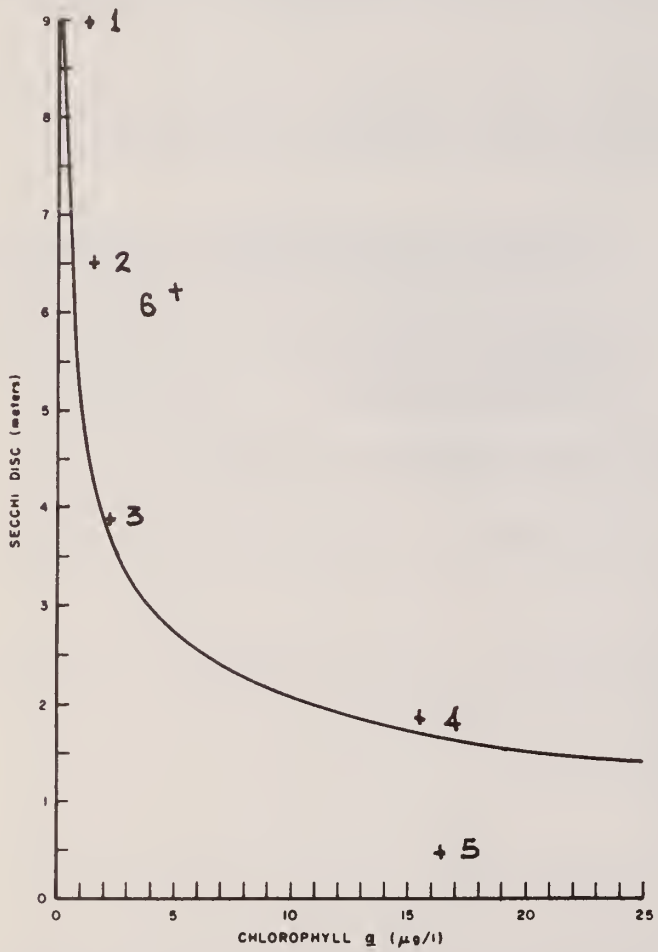
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Long Lake

Date	Stn. - 1 S.D.	Stn. - 1 Chloro. a	Stn. - 2 S.D.	Stn. - 2 Chloro. a
May 22	4.5	1.7	4.5	2.1
July 24	7.0	8.9	5.5	4.3
30	7.0	7.0	6.5	1.9
Aug 7	6.5	5.3	5.5	5.7
20	6.5	2.2	6.5	7.4
Mean	6.3	5.0	5.7	4.3

The chlorophyll a concentration at both stations fluctuated considerably during the period sampled, whereas the variations in the Secchi disc readings were more moderate. Based on the seasonal means for these two parameters, only a minor difference in water quality exists between the two stations sampled. Both stations are characterized by a high degree of water transparency, and abnormally high densities of suspended algae. considering their degree of clarity.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Long Lake in 1977 and 1978.

Year	Stn.- 1 S.D.	Chloro. a	Stn. - 2 S.D.	Chloro. a
1971				
1972				
1973				
1974				
1975				
1976				
1977	5.6		6.1	
1978	6.3	5.0	5.7	4.3
"				



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Long Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Long Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The variations in mean Secchi disc readings between 1977 and 1978 are within the range of natural year to year fluctuations. It is strongly recommended that participation in this program be continued, to determine if the high densities of suspended algae encountered this year, reflect the normal enrichment status of Long Lake.

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Ontario

Ministry of the Environment

LOON LAKE
Town of Gravenhurst,
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

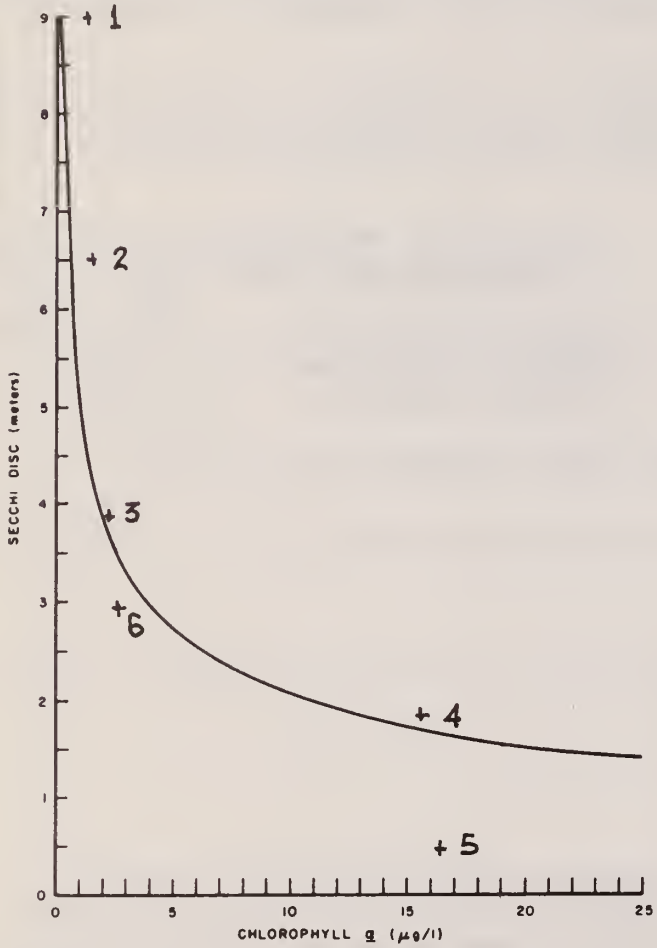
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Loon Lake

Date	Stn. - Main S.D.	Chloro. a
July 4	3.0	2.6
11	2.75	2.8
18	3.5	3.3
24	3.5	-
Aug 1	2.5	2.7
8	2.75	-
15	2.75	2.9
22	2.75	4.0
28	-	2.9
Sept 3	2.75	1.6
10	3.0	1.9
17	2.75	3.2
24	2.5	3.1
Oct 1	2.75	2.3
Mean	2.9	2.8

The Secchi disc readings remained relatively constant during the period sampled, varying from 2.5 to 3.5 meters, while the chlorophyll a concentration varied from 1.6 to 4.0 ug/l. The chlorophyll a data from July 24 and August 8 were deleted due to anomalies. Based on the seasonal means for these two parameters, Loon Lake would be considered moderately enriched, characterized by a low degree of water transparency and moderate densities of suspended algae. The colouration of Loon Lake, results in the degree of transparency being lower than normally associated with the measured density of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Loon Lake

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978	2.9	2.8
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Loon Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Loon Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph demonstrates the enrichment status of Loon Lake relative to a number of other southern Ontario lakes. While it is slightly more enriched than Balsam Lake, it is far removed from such high enriched waterbodies as Lake Scugog. It is recommended that participation in this program be continued to determine any long-term trends in water quality on Loon Lake.

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Ontario

LOONCALL LAKE
Burleigh Township,
Peterborough County

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Looncall Lake

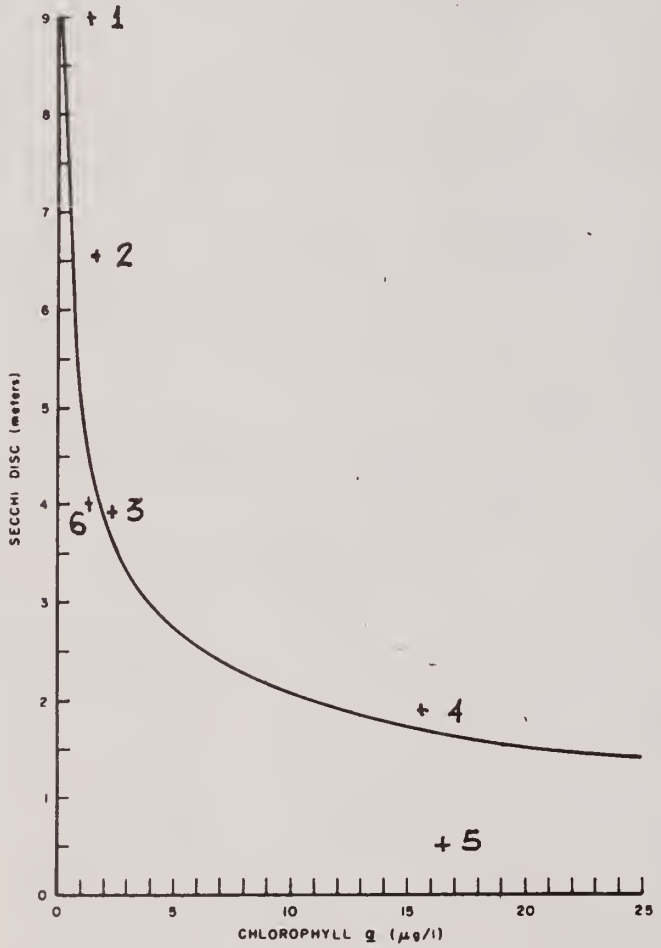
Date	Stn. - Main S.D.	Chloro. a
June 6	4.0	1.1

Insufficient data was collected to allow a meaningful conclusion to be reached.
More frequent sampling is encouraged.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Looncall Lake from 1971 to 1978.

Year	Stn. West End S.D.	Chloro. a	Stn. - East End S.D.
*1971	4.5	1.5	
1972			
1973			
*1974	3.4	1.6	
*1975	3.5	1.6	
*1976	3.2	3.9	
1977	4.2		5.5
1978	4.0	1.1	

* main lake station



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Looncall Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Looncall Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Continued participation in the sampling program is encouraged to define long-term trends.

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Ontario

Ministry of the Environment

MARY LAKE
Town of Huntsville
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

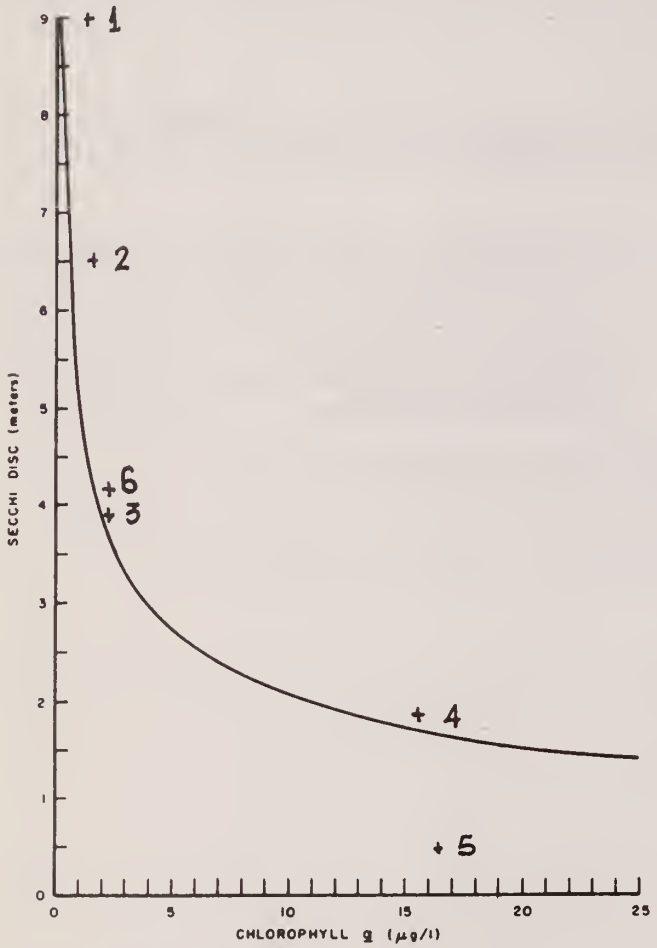
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Mary Lake

Date	Stn. - Main S.D.	Chloro. a
June 12	3.5	1.2
26	4.0	1.7
July 10	4.0	2.2
24	4.5	-
Aug 14	4.5	2.2
28	4.5	5.0
Mean	4.2	2.5

The Secchi disc reading remained relatively constant during the period sampled, varied from 3.5 to 4.5 meters, whereas the chlorophyll a concentration varied from 1.2 to 5.0 ug/l. The chlorophyll a data from July 24 was not reported, due to anomalies. Based on the season mean values for these two parameters, Mary Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Mary Lake from 1974 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974	4.5	1.7
1975	3.8	1.7
1976	4.1	2.3
1977	4.3	-
1978	4.2	2.5



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Mary Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Mary Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Since commencement of this program in 1974, the yearly variations in both the season mean Secchi disc reading and chlorophyll a concentration are within the range attributable to natural fluctuations. It is recommended that participation in this program be continued to determine if this stable condition persists.

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Ontario

MEDORA LAKE
Township of Muskoka Lakes
District Municipality of Muskoka

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

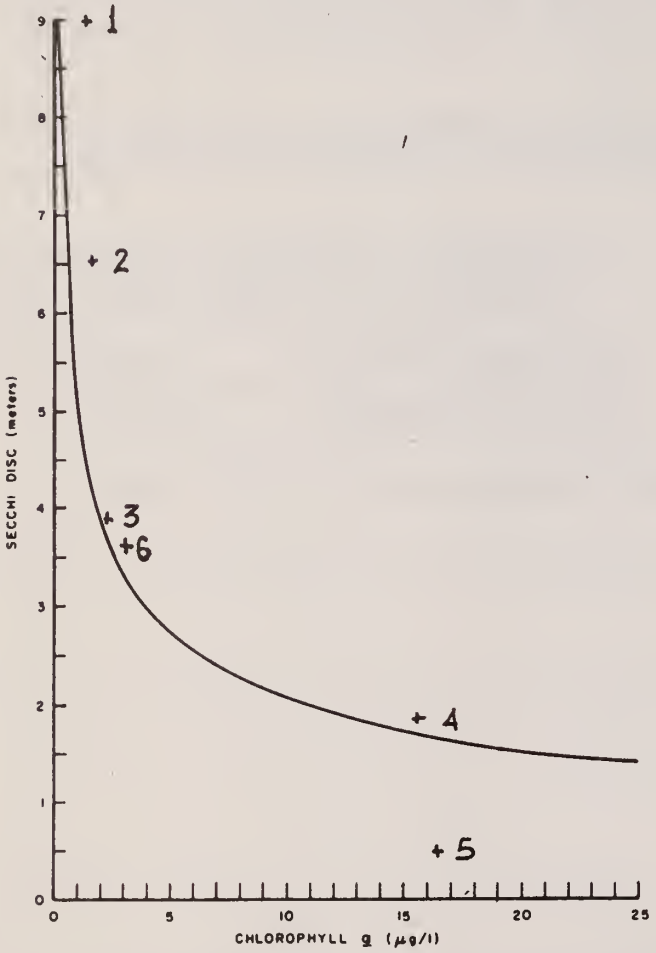
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Medora Lake

Date	Stn. S.D.	Main Chloro. a
July 26	3.7	2.0
Aug 15	3.7	3.4
Sept 6	3.7	4.5
20	3.5	2.5
Oct 2	3.5	4.1
Mean	3.6	3.3

The Secchi disc readings remained almost constant during the period sampled, whereas the chlorophyll a concentration varied from 2.0 to 4.5 ug/l. Based on the seasonal means for these two parameters, Medora Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Medora Lake from 1974 to 1978.

Year	Stn. S.D.	Chloro. a
1971		
1972		
1973		
1974	3.7	2.0
1975	4.1	9.0
1976	-	-
1977	4.1	-
1978	3.6	3.3
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Medora Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Medora Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Variations in the seasonal mean Secchi disc readings have been minimal since commencement of this program in 1974, indicating a relatively stable lake condition. Continued participation in this program is recommended, to determine if this trend continues.

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Ontario

Ministry of the Environment

MISKWABI LAKE
Dudley Township
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

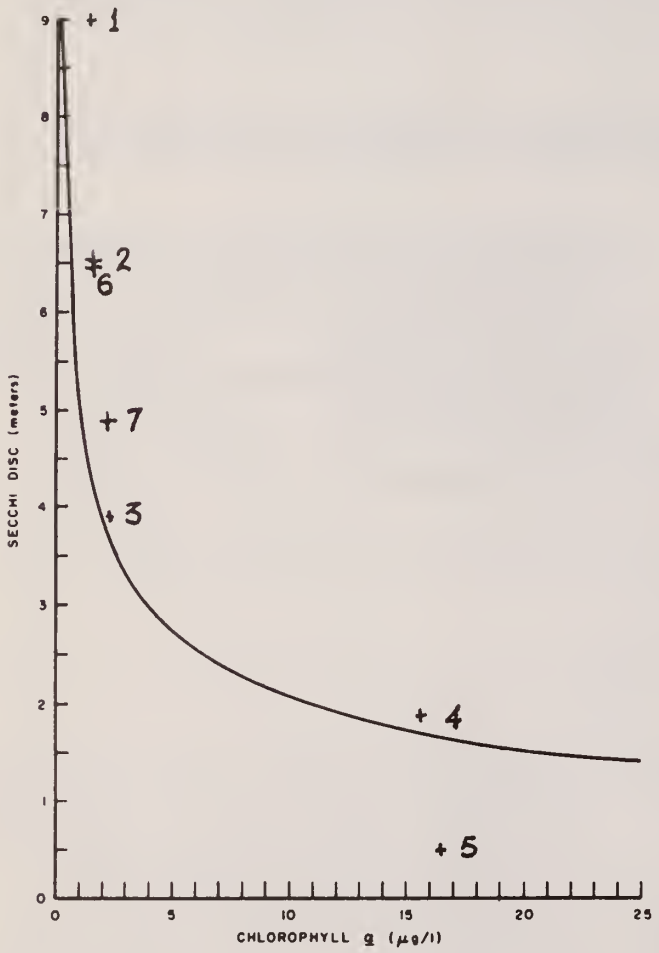
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Miskwabi Lake

Date	Stn.- 6 S.D.	Stn.- 6 Chloro. a	Stn. - 13 S.D.	Stn. - 13 Chloro. a	
May 22	6.5	1.5	-	-	
28	-	-	5.0	1.4	No trend is evident in the variations
June 4	6.0	1.2	5.25	1.6	experienced by either the Secchi disc
13	6.5	1.0	-	-	readings or chlorophyll a concentrations
18	5.25	1.6	-	-	at either station. The elevated
25	-	-	5.5	1.2	chlorophyll a concentration at Stn. 13
July 3	-	-	6.25	1.2	on July 23 was probably due to the
9	6.5	1.5	6.25	1.2	presence of small plant fragment in
16	6.25	1.2	-	-	the sample. Based on the season means
23	-	-	5.5	8.4	for the two parameters monitored,
30	6.0	2.2	-	-	both stations would be considered
Aug 7	7.5	1.8	5.5	1.6	unenriched, characterized by a high
13	7.0	1.4	-	-	degree of water transparency and low
20	-	-	6.75	1.0	densities of suspended algae. Stn. 13
27	-	-	6.5	1.7	is slightly more enriched thatn Stn. 6
Sept 4	7.8	1.6	-	-	as evidenced by higher densities of
n	6.5	1.5	5.8	2.1	suspended algae and a lower degree of water transparency.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Miskwabi Lake from 1975 to 1978.

Year	Stn. 6 S.D.	Chloro. a	Stn. - 13 S.D.	Chloro. a
1971				
1972				
1973				
1974				
* 1975	7.7	1.6	7.0	1.6
1976	6.4	1.6	5.6	2.2
1977	7.9		5.9	
1978	6.5	1.5	5.8	2.1

" * MOE data



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Miskwabi Lake (Stn 6) - 1978
7. Miskwabi Lake (Stn 13) - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Miskwabi Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in the seasonal mean Secchi disc readings, and chlorophyll a concentrations, outlined in Table 2, reflect natural fluctuations and not an alteration in the overall quality of Miskwabi Lake. Continued participation in this program is recommended, to determine if this stable condition persists.

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Ontario

Ministry of the Environment

MOOSE LAKE
Guilford & Harburn Townships,
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Moose Lake

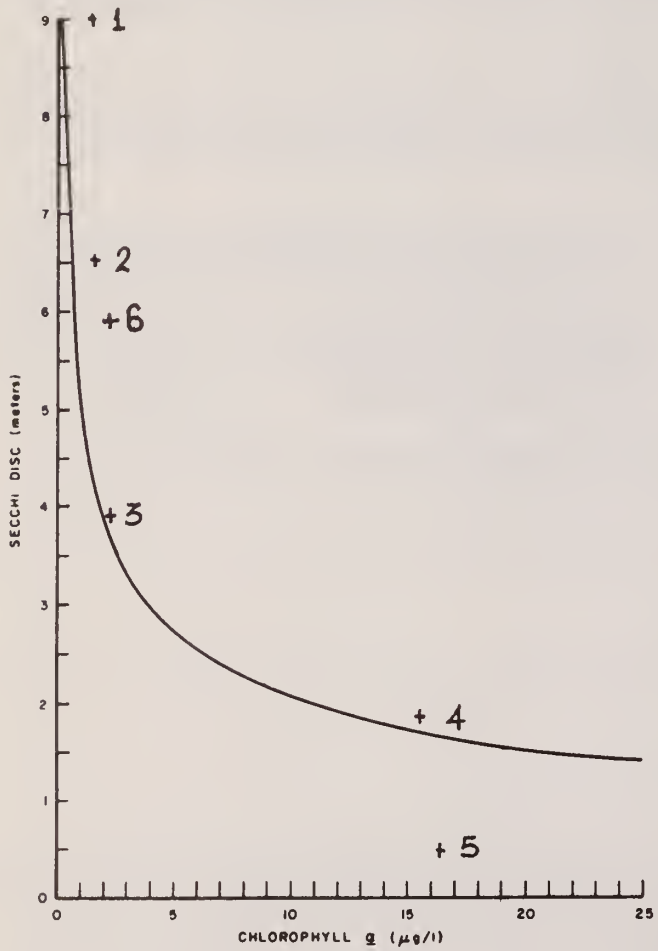
Date	Stn. - Main S.D.	Chloro. a
May 3	6.5	2.3
July 9	5.0	2.9
16	6.0	2.7
23	6.5	2.8
30	6.0	2.3
Aug 7	6.0	2.3
13	6.0	1.6
20	5.5	1.8
27	6.0	-
Mean	5.9	2.3

The Secchi disc readings varied from 5.0 to 6.5 meters, and the chlorophyll a concentration varied from 1.6 to 2.9 ug/l, during the period sampled. No trends are apparent in the variation experienced by either of these parameters. Based on the seasonal means for these parameters, Moose Lake would be considered unenriched, characterized by a high degree of water transparency and moderately low densities of suspended algae.

The chlorophyll a data for August 27 was not reported, due to anomalies.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Moose Lake in 1978.

Year	Stn. S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978	5.9	2.3
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Moose Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Moose Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph demonstrates the enrichment status of Moose Lake relative to a number of other southern Ontario lakes. Though slightly more enriched than Twelve Mile Lake, it is far removed from such highly enriched water bodies as Lake Scugog. It is recommended that participation in this program be continued, in order to determine any long-term water quality trends affecting Moose Lake.

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Ontario

MULDREW LAKE
Town of Gravenhurst, District
Municipality of Muskoka

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Muldrew Lake

Date	Stn. North S.D.	Chloro. a
July 17	2.5	0.8
Aug 31	3.5	3.0
Mean	3.0	1.9

Insufficient information was collected to allow any meaningful conclusions to be made.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Muldrew Lake in 1976 to 1978.

Year	Stn. Good S.D.	Chloro. a	Stn. - Throw S.D.	Chloro. a
1971				
1972				
1973				
1974				
1975				
1976	3.9	2.9	3.3	3.8
1977	3.7			
1978	3.0	1.9		
"				

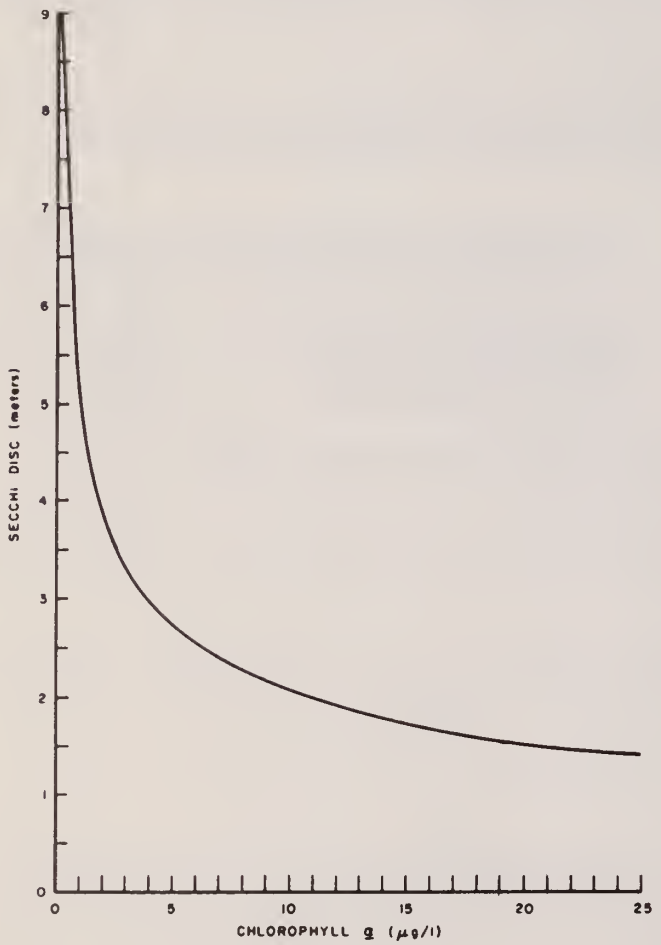

Figure 1: The relationship between Secchi disc and chlorophyll a for and a number of other well-known recreational lakes in the province. All data are seasonal means.

If participation in this program is to be continued, then the sampling frequency must be increased, in order that meaningful data may be obtained.

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Ontario

MUSKOKA BAY
Town of Gravenhurst
District Municipality of Muskoka

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Muskoka Bay

Date	Stn.- Parker's Point (1) S.D.	Chloro. a	Stn. - Cliff Rock (2) S.D.	Chloro. a
May 10	4.0	0.8	5.0	1.4
July 24	4.5	2.5	4.0	3.1
31	4.5	2.8	4.5	2.6
Aug 13	5.0	2.7	4.5	0.9
20	5.5	2.8	6.0	1.9
Sept 4	5.5	3.3	5.0	3.9
Mean	4.8	2.5	4.8	2.3

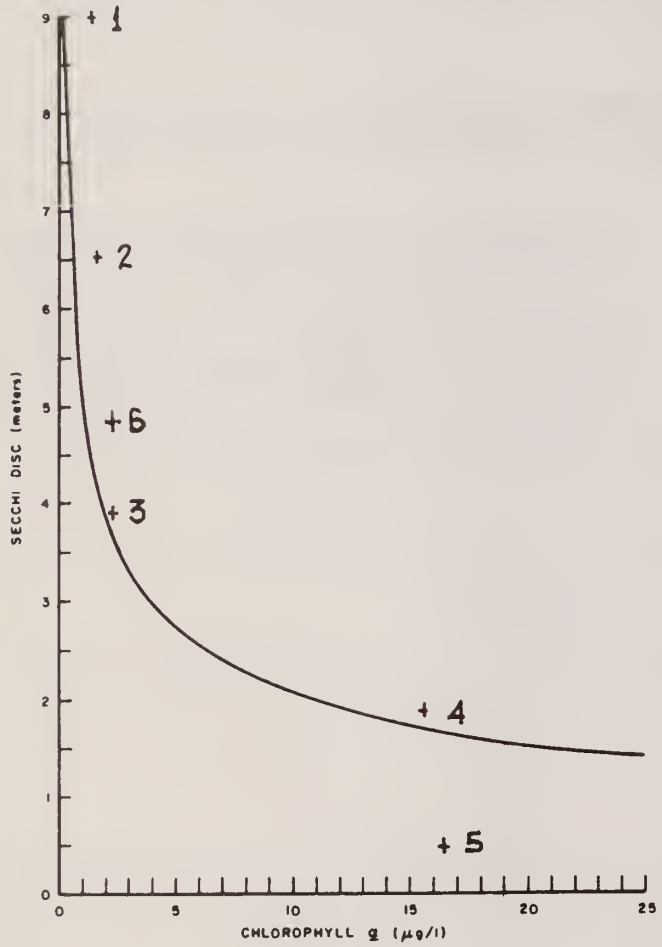
No trends are evident in the variations experienced by either the Secchi disc readings or chlorophyll a concentrations at either of the stations monitored. Based on the seasonal means for these two parameters, Muskoka Bay would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderately low densities of suspended algae. The difference in water quality between the two stations monitored is minimal.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Muskoka Bay from 1971 to 1978

Year	Stn. 1 S.D.	Chloro. a	Stn. - 2 S.D.	Chloro. a
* 1971	1.9	13.8		
* 1972	3.1	8.1		
* 1973	3.2	6.9		
* 1974	2.7	5.0		
* 1975	3.9	5.0		
* 1976	3.7	10.6		
1977	4.3	-	4.1	-
1978	4.8	2.5	4.8	2.3

"

* MOE data



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Muskoka Bay - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Muskoka Bay and a number of other well-known recreational lakes in the province. All data are seasonal means.

Based on the data obtained from this program, there appears to have been an improvement in the overall quality of the Bay in 1978, as evidenced by lower algal densities and a greater degree of transparency. It is expected that the quality of the Bay will stabilize at approximately its present level, however it will be subject to yearly variations due to natural fluctuations. Continued participation in this program will allow the future quality of the Bay to be monitored.

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Ontario

PERCY LAKE
Harburn Township
Provisional County of Haliburton

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

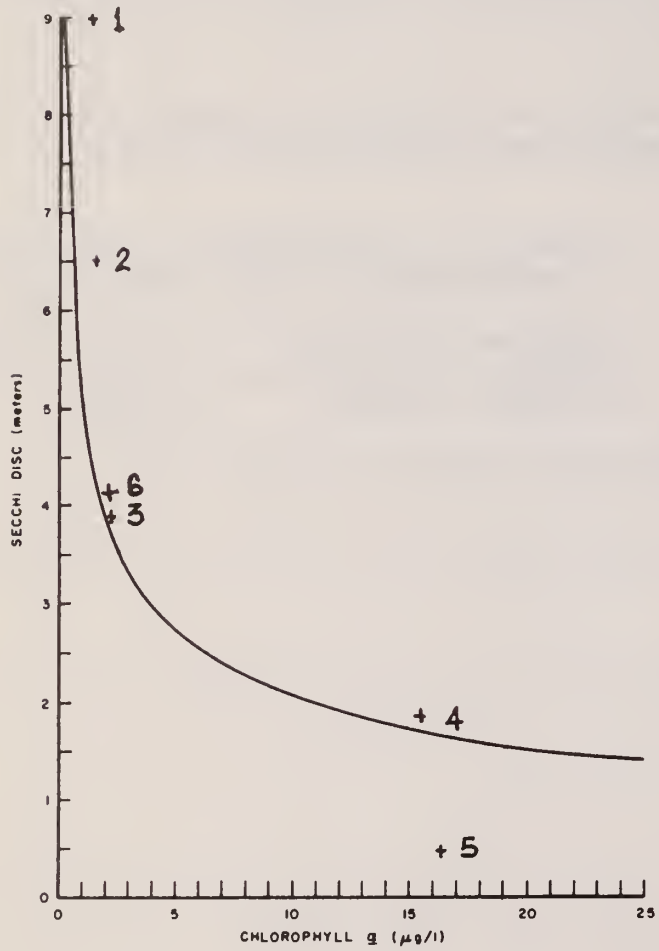
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Percy Lake

Date	Stn. - Main S.D.	Chloro. a
May 22	4.25	0.6
June 3	4.5	1.1
18	4.25	0.9
July 3	3.25	1.7
Aug 7	4.0	4.0
20	4.25	3.3
Sept 4	4.5	4.1
Mean	4.1	2.2

The Secchi disc readings varied from 3.25 to 4.5 meters, and the chlorophyll a concentration varied from 0.6 to 4.1 ug/l during theperiod sampled. No trends are evident in the variations experienced by either of these parameters. Based on the seasonal means for these two parameters, Percy Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderately low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Percy Lake in 1978.

Year	Stn.- Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978	4.1	2.2
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Percy Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Percy Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph demonstrates the enrichment status of Percy Lake relative to a number of other southern Ontario lakes. While it is slightly more enriched than Twelve Mile Lake, it is far removed from such highly enriched water bodies as Lake Scugog. It is recommended that participation in this program be continued, to determine any long-term trends in the quality of Percy Lake.

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PENINSULA LAKE
Township of Lake of Bays
District Municipality of Muskoka

Ontario

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Peninsula Lake

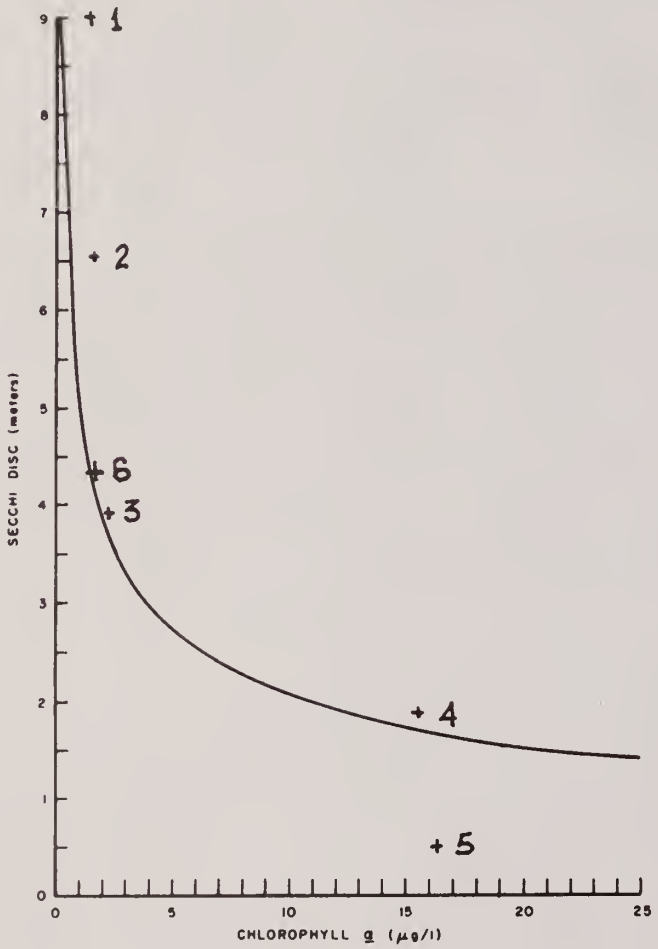
Date	Stn.- 1 (Wolf B.) S.D.	Stn.- 1 (Wolf B.) Chloro. a	Stn. 2 - (Deerhurst B.) S.D.	Stn. 2 - (Deerhurst B.) Chloro. a
May 25	2.5	3.4	3.0	3.6
June 25	4.5	1.6	4.5	1.5
July 8	5.5	1.5	5.5	1.6
30	3.5	1.8	4.0	1.7
Aug 6	-	0.8	-	2.1
24	-	-	5.5	0.7
Sept 3	4.0	1.5	4.5	1.4
Mean	4.0	1.8	4.5	1.8

The lowest measurements of water transparency and highest algal densities occurred in May at both stations, and the highest measurement of water transparency occurred at the beginning of July. Based on the seasonal means for the two parameters monitored, Peninsula Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and low densities of suspended algae. The variation in water quality between the two stations monitored is minimal.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Peninsula Lake from 1973 to 1978.

Year	Stn. - Lake Average S.D.	Chloro. a
1971		
1972		
* 1973	4.5	1.9
1974		
** 1975	4.0	1.1
1976	4.3	2.8
1977	5.1	
1978	4.3	1.8
"		

* MOE data
** based on 1 sampling



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Peninsula Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Peninsula Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Although, there has been considerable year to year variation in the seasonal mean Secchi disc readings and chlorophyll a concentrations as outlined in Table 2, the overall condition of the lake appears stable. The variations experienced are within the range normally attributable to natural variations, and no distinct trend has developed. It is recommended that participation in this program is continued to determine future trends in Peninsula Lake's quality.

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Ontario

Ministry of the Environment

RIL LAKE
Township of Lake of Bays,
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Ril Lake

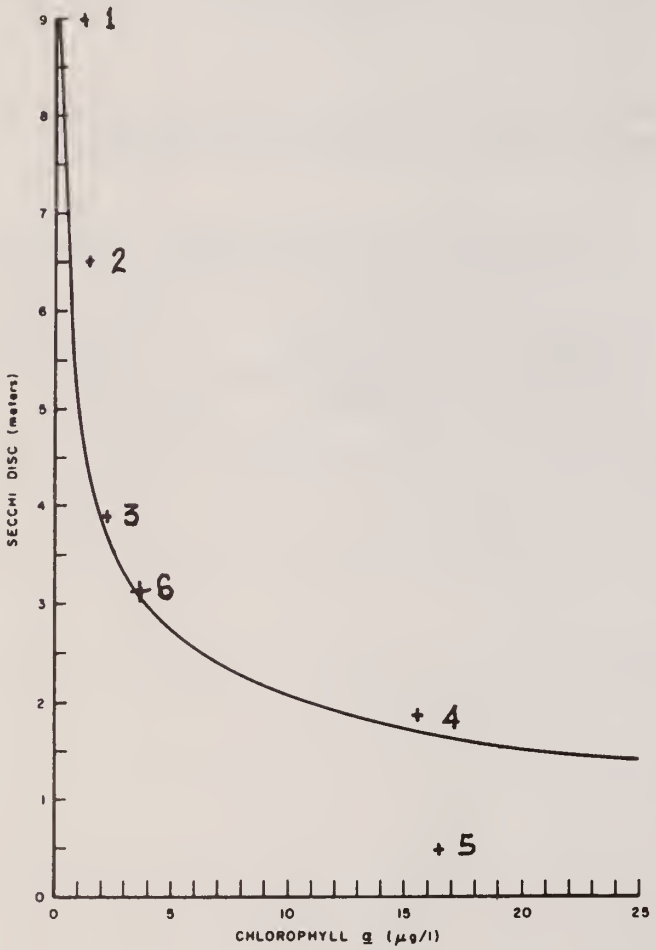
Date	Stn.- Main S.D.	Chloro. a
July 5	3.0	3.4
12	2.5	4.9
19	2.75	3.2
26	2.5	4.0
Aug 2	3.9	3.9
9	3.3	3.0
16	3.50	1.8
23	3.25	8.0
Sept 6	3.0	7.1
20	3.25	6.2
Mean	3.1	3.8

The Secchi disc readings remained relatively constant during the period sampled, whereas the chlorophyll a concentration increased significantly during the latter part of the sampling period. Based on the seasonal means for these two parameters, Ril Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Ril Lake in 1972, 1976 to 1978.

Year	Stn.- Main S.D.	Chloro. a
1971		
* 1972	2.5	4.3
1973		
1974		
1975		
1976	3.3	3.9
1977	3.0	
1978	3.1	3.8
"		

* MOE data



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Ril Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Ril Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The minor yearly variations in the mean seasonal Secchi disc readings and chlorophyll a concentration, outlined in Table 2, are attributable to natural fluctuations, and not an alteration in the overall water quality of Ril Lake. It is recommended that participation in this program be continued, to determine if this stable lake condition persists.

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Ontario

ROUND LAKE
Belmont Township,
Peterborough County

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

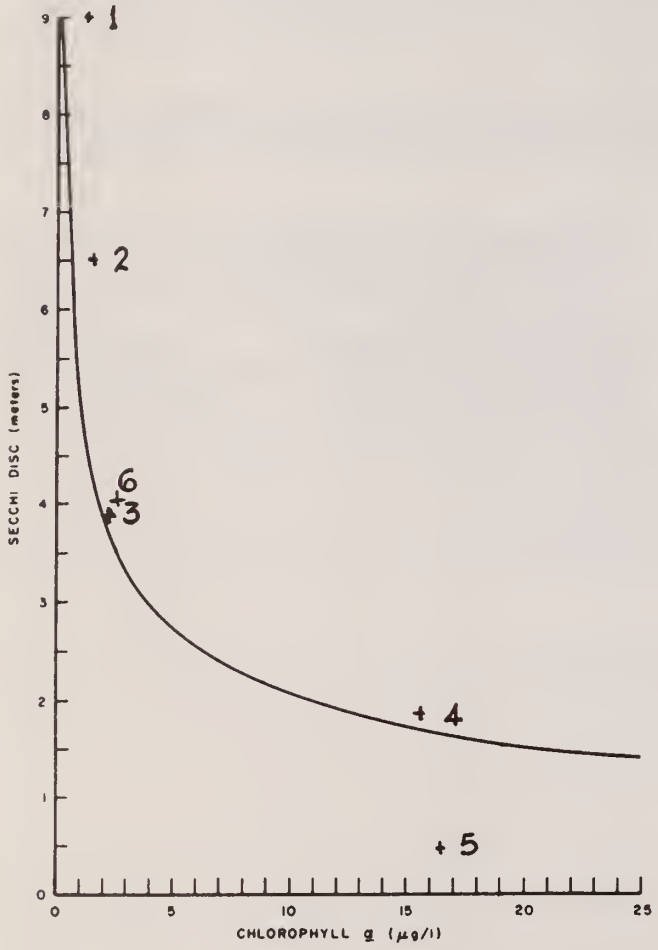
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Round Lake

Date	Stn. S.D.	Main Chloro. a
May 3	3.0	2.2
July 9	3.0	3.4
16	3.0	2.4
23	3.0	3.4
30	3.0	2.8
Aug 7	3.25	2.2
13	4.0	2.3
20	3.5	1.8
27	4.0	2.4
Sept 4	3.0	2.0
Mean	3.3	2.5

Very little fluctuation in the Secchi disc readings and chlorophyll a concentrations occurred over the sampling period. Average values for the two parameters indicate that Round Lake is moderately enriched with moderate algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Round Lake in 1977 and 1978

Year	Stn. Main S.D.	Chloro. a	
1971			
1972			
1973			
1974			
1975			
1976			
1977	2.9		
1978	3.3	2.5	
1978*	4.0	2.6	* mean values from MOE/7 Links Water Quality Survey 1978



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Round Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Round Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Water clarity was slightly higher in 1978 than that of 1977 however, the difference may well be the result of natural variation. Continued participation in the sampling program is encouraged to define long-term trends.

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Ontario

Ministry of the Environment

SALERNO LAKE
Snowdon and Glamorgan Township,
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Salerno Lake

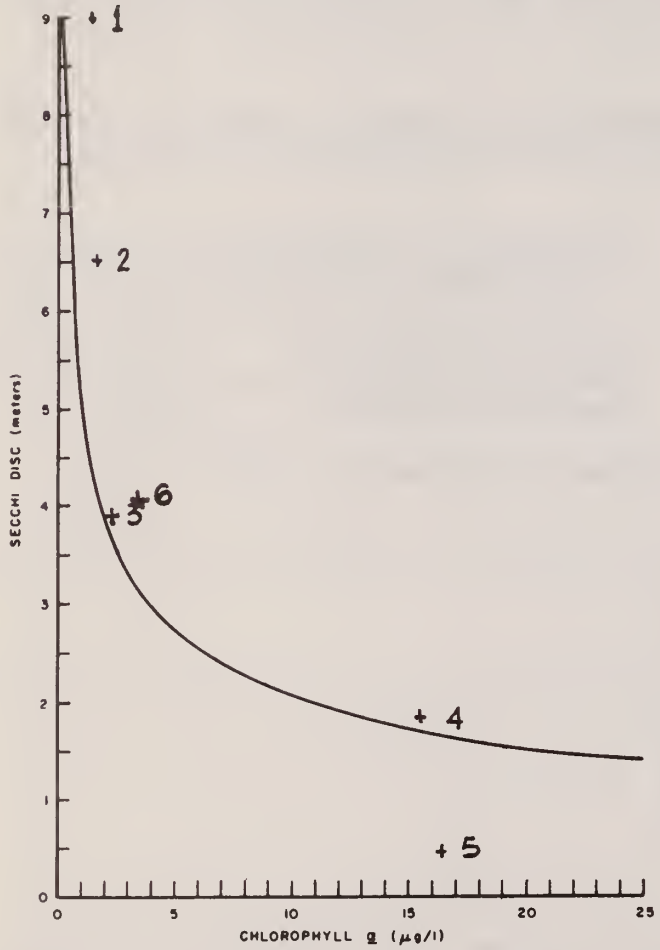
Date	Stn. - A S.D.	Stn. - A Chloro. a	Stn. - B S.D.	Stn. - B Chloro. a
July 3	4.0	3.0	4.0	3.5
16	4.0	-	5.0	2.7
30	3.0	4.6	4.0	2.9
Sept 3	5.0	3.5	4.0	2.9
Mean	4.0	3.7	4.3	3.0

Since Salerno Lake was sampled on only four occasions in 1978, it is difficult to obtain even a reasonably accurate assessment of the lake's trophic status. Based on the seasonal means of the available data, Salerno Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae. The variation in water quality between the two stations sampled is minimal.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Salerno Lake from 1973 to 1978.

Year	Stn. - 1 S.D.	Stn. - 1 Chloro. a	Stn. - 2 S.D.	Stn. - 2 Chloro. a
1971				
1972				
* 1973	6.0	1.9		
1974	-	-		
1975	3.6	4.0	4.5	2.2
1976	3.6	3.0	3.9	2.6
1977	4.1		4.4	
1978	4.0	3.7	4.3	3.0
"				

* mean of 3 stations



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Salerno Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Salerno Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in the seasonal mean Secchi disc readings and chlorophyll a concentrations have been minimal over the last four years, reflecting a stable lake condition. Continued participation in this program with more frequent sampling, is recommended to determine if this condition persists.

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Ministry of the Environment

SHADOW LAKE
Laxton & Somerville Township,
Victoria County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

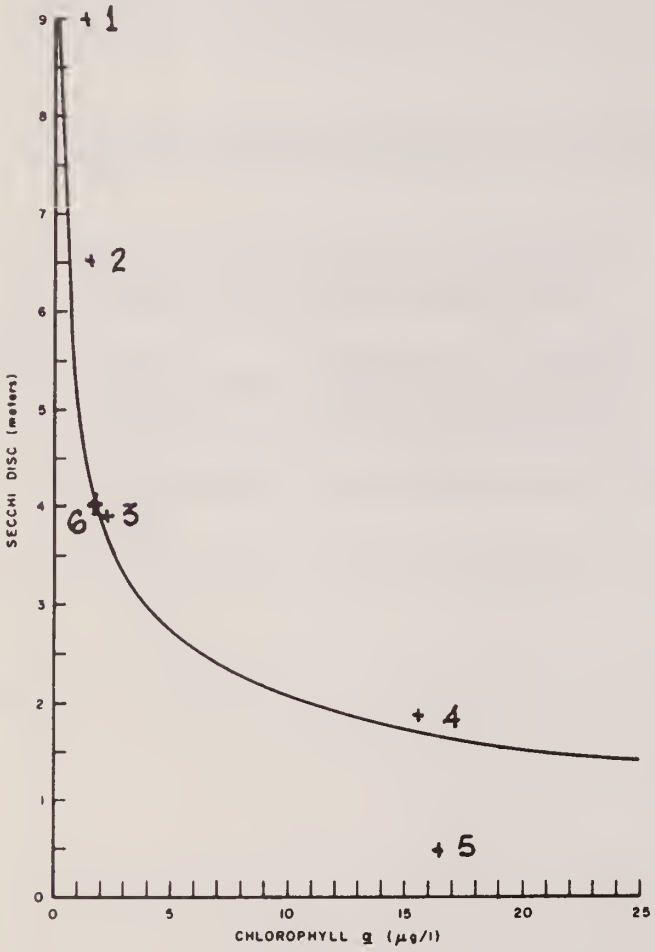
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Shadow Lake

Date	Stn. Main S.D.	Chloro. a
June 9	4.6	1.6
July 16	5.5	1.5
Aug 7	4.3	2.0
13	4.3	2.0
20	4.9	1.5
27	4.9	2.4
Sept 4	4.9	1.6
Mean	4.8	1.8

Little fluctuation in Secchi disc readings and chlorophyll a concentration occurred over the sampling period. Based on these two parameters Shadow Lake is considered moderately enriched with low algal density.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Shadow Lake from 1972 to 1978

Year	Stn. Main S.D.	Chloro. a
1971		
1972	6.0	1.0
1973	5.0	0.7
1974	5.0	1.0
1975	-	-
1976	-	-
1977	4.3	
1978	4.8	1.8



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Shadow Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Shadow Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The variation in Secchi disc readings and chlorophyll a concentration in Table 2 may be due entirely to natural annual fluctuations. No definite trend in lake quality is apparent as yet. Continued participation in the sampling program is encouraged to define long-term trends in lake quality.

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Ontario

Ministry of the Environment

SIX MILE LAKE
Township of Georgian Bay
Muskoka County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

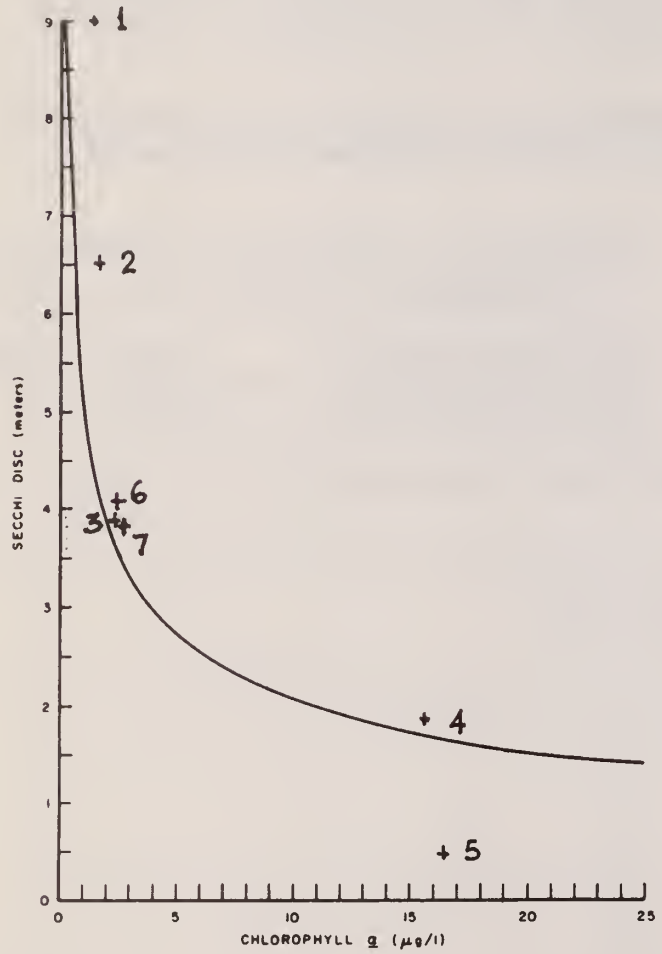
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Six Mile Lake

Date	Stn.- South Crooked Bay S.D.	Chloro. a	Stn. - Lost Channel S.D.	Chloro. a
May 28	2.5	3.7	2.5	3.4
June 11	2.75	2.0	3.25	2.3
18	3.25	3.0	2.75	6.0
July 3	3.5	4.6	3.5	4.2
16	3.5	2.4	3.5	3.7
23	4.25	1.9	4.75	1.9
Aug 7	5.9	1.4	5.25	1.8
27	4.25	2.0	5.25	2.8
Sept 23	5.8	1.3	5.8	1.1
24	5.5	1.9	5.5	1.9
Mean	4.1	2.4	3.8	2.9

Both stations recorded their poorest water transparency at the end of May, and the highest degree of transparency during August and September. This increased transparency corresponded with lower densities of suspended algae during that time period. Based on the seasonal means for the two parameters monitored, Six Mile Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae. The difference in quality between the two stations monitored is minimal, with the Lost Channel station being slightly more enriched than S. Crooked Bay.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Six Mile Lake in 1977 and 1978.

Year	Stn. - 1 (S. Crooked Bay) S.D.	Chloro. a	Stn. - 2 (Lost Channel) S.D.	Chloro. a
1971				
1972				
1973				
1974				
1975				
1976				
1977	4.1		4.1	
1978	4.1	2.4	3.8	2.9
"				



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Six Mile Lake -(Stn 1) 1978
7. Six Mile Lake -(Stn 2) 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Six Mile Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph demonstrates the enrichment status of Six Mile Lake relative to other southern Ontario lakes. It is less enriched than Balsam Lake, and is far removed from such high enriched water bodies as Lake Scugog. Continued participation in this program is required, to determine any long-term trends in the quality of Six Mile Lake.

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Ministry of the Environment

SOYERS LAKE
Minden Township, Provisional
County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

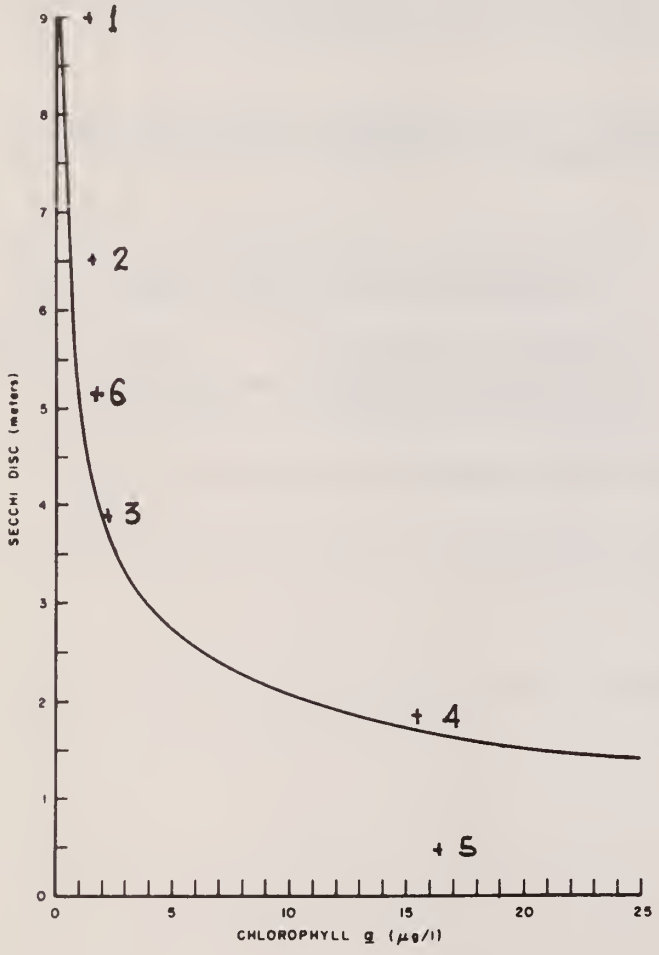
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Soyers Lake

Date	Stn. - Main S.D.	Chloro. a
June 11	6.5	1.3
July 3	4.9	1.7
9	4.9	-
23	4.9	1.7
Aug 7	5.2	1.9
Sept 4	4.9	2.6
Mean	5.2	1.8

The Secchi disc readings varied from 4.9 to 6.5 meters and the chlorophyll a concentration from 1.3 to 2.6 ug/l during the period sampled. No significant trends are evident in the variations experienced by either of these parameters. Based on the seasonal means of these parameters, Soyers Lake would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae. The chlorophyll a data from July 9 was not reported due to anomalies.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Soyers Lake from 1973 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973	3.8	1.7
1974	4.4	0.9
1975	3.5	2.1
1976	4.3	1.7
1977	5.0	
1978	5.2	1.8



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Soyers Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Soyers Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Based on the data presented in Table 2, it appears that there has been slight overall improvement in the quality of Soyers Lake since 1973. Continued participation in this program is recommended, to enable future water quality trends in Soyers Lake to be monitored

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Ontario

STONY LAKE
Dummer Township
Peterborough County

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Stony Lake

Date	Stn. A Main S.D.	Chloro. a	Stn. B S.D.	Chloro. a	Stn. C S.D.	Chloro. a
May 23	3.7	2.8				
June 26	3.25	2.7				
July 12	4.0	1.2				
23	4.0	1.5				
Aug 14	4.5	1.7				
15	-	-	3.0	1.5	4.0	1.1
Sept 24	4.0	2.4				
Oct 11	3.75	2.3				

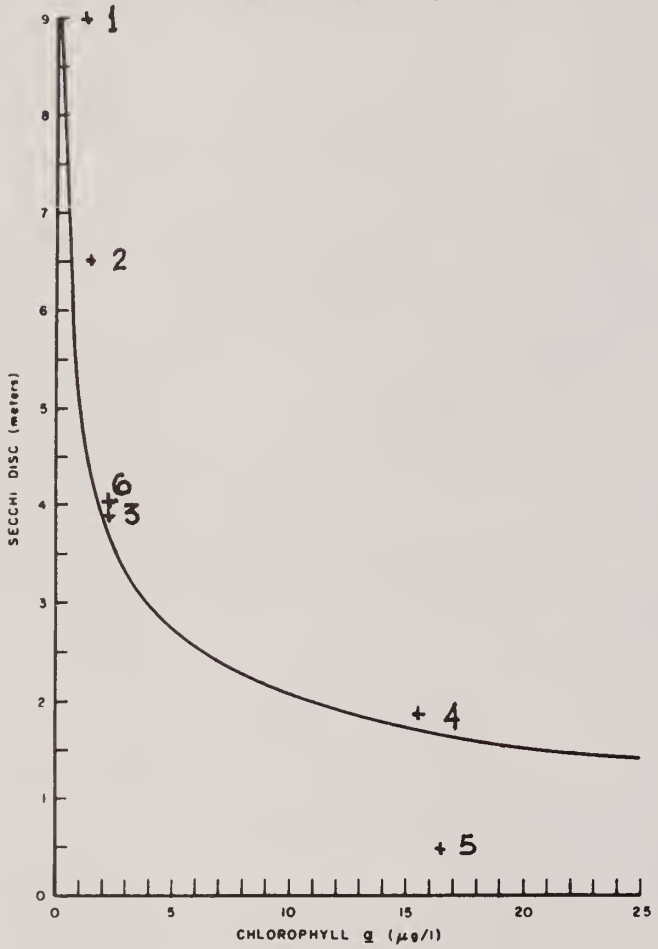
Only Station A was sampled a sufficient number of times to draw conclusions about lake quality. Based on the average values of the two parameters the Upper Basin of Stony Lake (as represented by Station A) is considered moderately enriched.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Stony Lake between 1971 and 1978.

Year	Stn. A S.D.	Stn. A Chloro. a	Stn. B S.D.	Stn. B Chloro. a	Stn. C S.D.	Stn. C Chloro. a
1971*	4.8	2.3			-	-
1972*	3.7	2.8			2.5	4.7
1973						
1974						
1975						
1976*	4.3	3.9			2.3	5.7
1977						
1978	3.9	2.1	3.0	1.5	4.0	1.1
1978**	4.6	3.1			2.6	5.7

* mean values of samples taken by MOE staff

** mean values from MOE/7 Links Water Quality Survey 1978



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Stony Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Stony Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The values presented in Table 2 indicate that there has been no define trend in the trophic status of Stony Lake since 1971. The year to year variation may be due in part to natural annual fluctuations. Continued participation in the sampling program is requested to define long-term trends in lake quality.

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Ministry of the Environment

STORMY LAKE
Glamorgan Township,
Provisional County of Haliburton

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

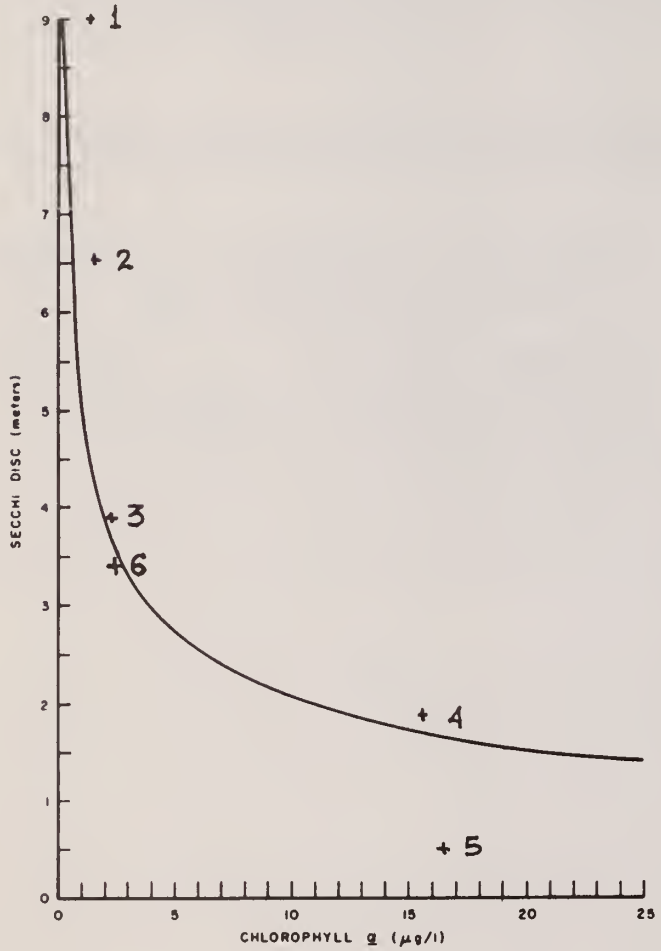
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Stormy Lake

Date	Stn. - Main S.D.	Chloro. a
June 18	3.7	2.4
July 9	3.0	1.1
23	3.0	2.3
Aug 7	3.0	2.8
21	3.7	4.1
Sept 3	3.7	2.6
Mean	3.4	2.6

The Secchi disc reading varied from 3.0 to 3.7 meters and the chlorophyll a concentration varied from 1.1 to 4.1 ug/l during the period sampled. No trends are evident in the variations experienced by either of these parameters. Based on the seasonal means for these two parameters, Stormy Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Stormy Lake from 1972 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972	2.8	1.9
1973	3.7	1.6
1974	2.4	1.4
1975	3.8	2.2
1976	3.7	1.5
1977	3.9	
1978	3.4	2.6



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Stormy Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Stormy Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Although the seasonal mean Secchi disc reading decreased from its 1977 level, and there was an increase in chlorophyll a concentrations, these changes are probably attributable to natural fluctuations and do not represent a change in the overall quality of Stormy Lake. It is recommended that participation in this program be continued, in order that future water quality trends may be monitored.

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Ontario

Ministry of the Environment

TALLAN LAKE
Chandos Township
Peterborough County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

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Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

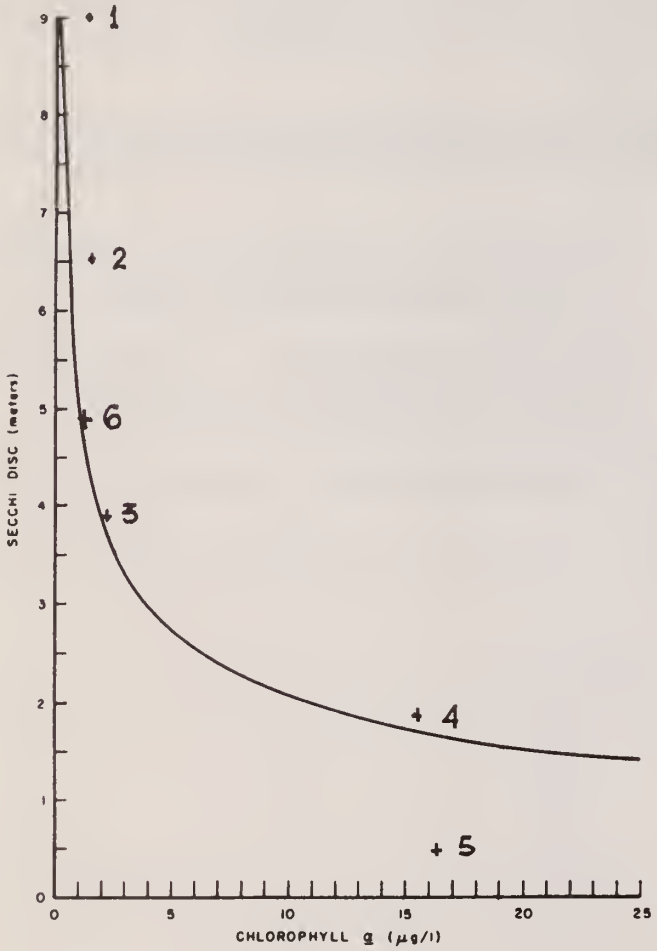
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Tallan Lake

Date	Stn. - A S.D.	Stn. - A Chloro. a	Stn. B S.D.	Stn. B Chloro. a
May 30	6.0	0.5	6.5	1.2
June 14	5.0	1.4	4.0	1.1
28	5.0	0.9	4.5	0.7
July 17	6.0	0.7	5.5	0.6
Aug 2	5.0	0.6	5.5	0.8
16	5.5	0.8	5.0	0.9
Sept 20	5.0	1.8	5.5	2.3
Mean	5.4	1.0	5.2	1.1

Variation in the values found in Table 1 was relatively minor over the sampling period. Average values for Secchi disc and chlorophyll a concentration indicate that Tallan Lake is unenriched and has low algal densities at both stations.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Tallan Lake in 1977 and 1978.

Year	Stn. - A S.D.	Chloro. a	Stn. B S.D.	Chloro. a
1971				
1972				
1973				
1974				
1975				
1976				
1977	4.1		4.1	
1978	5.4	1.0	5.2	1.1
"				



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Tallan Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Tallan Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The improvement in water clarity this year over 1977 may be due to natural annual fluctuations. Only continued participation in the sampling program will allow conclusions about the long-term trends in lake quality.

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Ontario

TOCK LAKE
McClintock Township,
Provisional County of Haliburton

Ministry of the Environment

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Tock Lake

Date	Stn. - Main S.D.	Chloro. a
July 2	6.25	1.4
30	5.25	2.6
Aug 12	8.25	1.5
Mean	6.6	1.8

Insufficient data was collected to allow a meaningful conclusion to be reached.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Tock Lake in 1976 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976	5.6	2.6
1977	6.3	
1978	-	-
"		

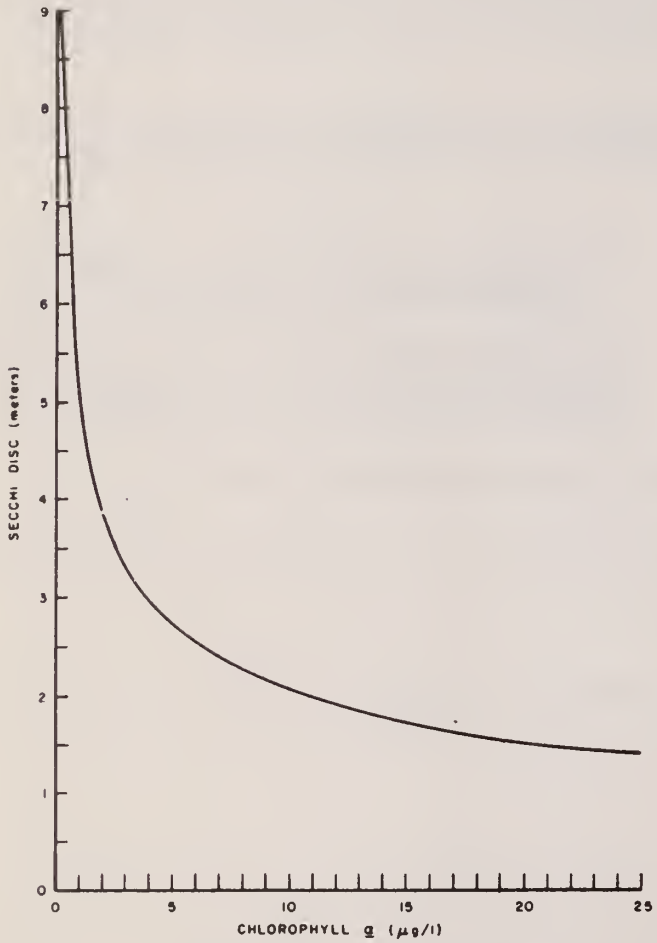

Figure 1: The relationship between Secchi disc and chlorophyll a for Tock Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

If participation in this program is continued, an increased sampling frequency is required in order that meaningful data may be obtained.

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Ministry of the Environment

Central Region

TURTLE LAKE
Town of Gravenhurst,
District Municipality of Muskoka

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

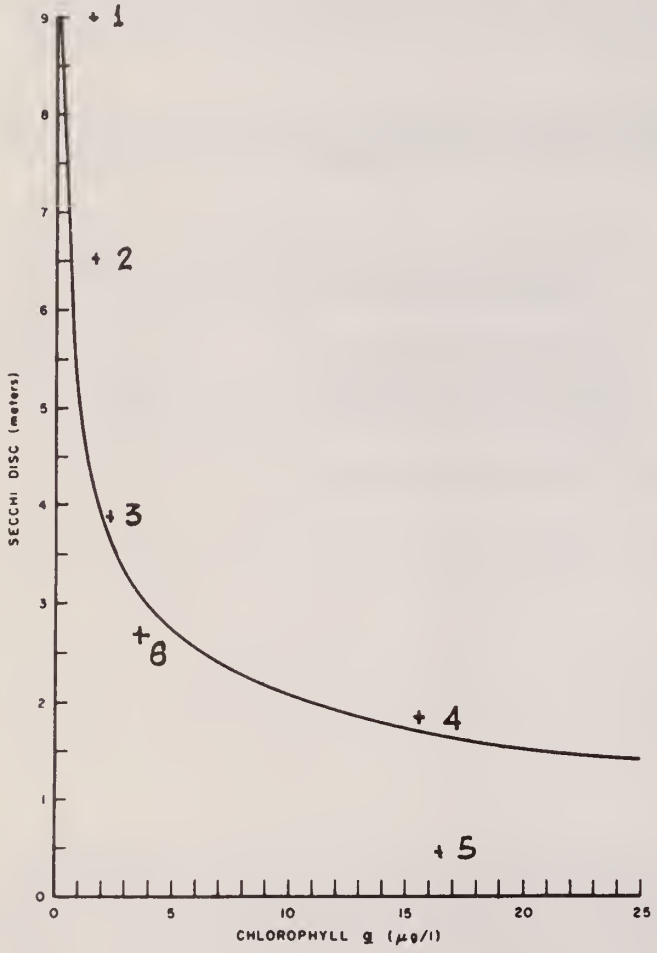
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Turtle Lake

Date	Stn. - Main S.D.	Chloro. a
July 4	3.5	3.0
11	3.0	5.8
18	2.5	4.3
24	2.25	3.3
Aug 1	1.5	2.7
8	2.5	2.2
15	3.0	1.6
22	2.75	3.3
28	-	3.3
Sept 3	3.25	2.6
10	2.5	5.7
17	2.25	7.4
24	2.75	4.8
Oct 1	3.0	5.0
Mean	2.7	3.9

The Secchi disc readings varied from 1.5 to 3.5 meters and the chlorophyll a concentrations varied from 1.6 to 7.4 ug/l. No trends are evident in the variations experienced by either of these parameters. Based on the seasonal means for these two parameters, Turtle Lake would be considered moderately enriched, characterized by a low degree of water transparency and moderate densities of suspended algae. The colouration of the water results in a slightly lower degree of water transparency than normally is encountered with similar algal densities.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Turtle Lake in 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974		
1975		
1976		
1977		
1978	2.7	3.9
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Turtle Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Turtle Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The above graph demonstrates the enrichment status of Turtle Lake relative to a number of other southern Ontario lakes. Although more enriched than Balsam Lake, it is considerably removed from such highly enriched waterbodies as Lake Scugog. Continued participation in this program is required to identify any long-term trends in water quality.

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Ministry of the Environment

WALKER'S LAKE
Township of Lake of Bays,
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

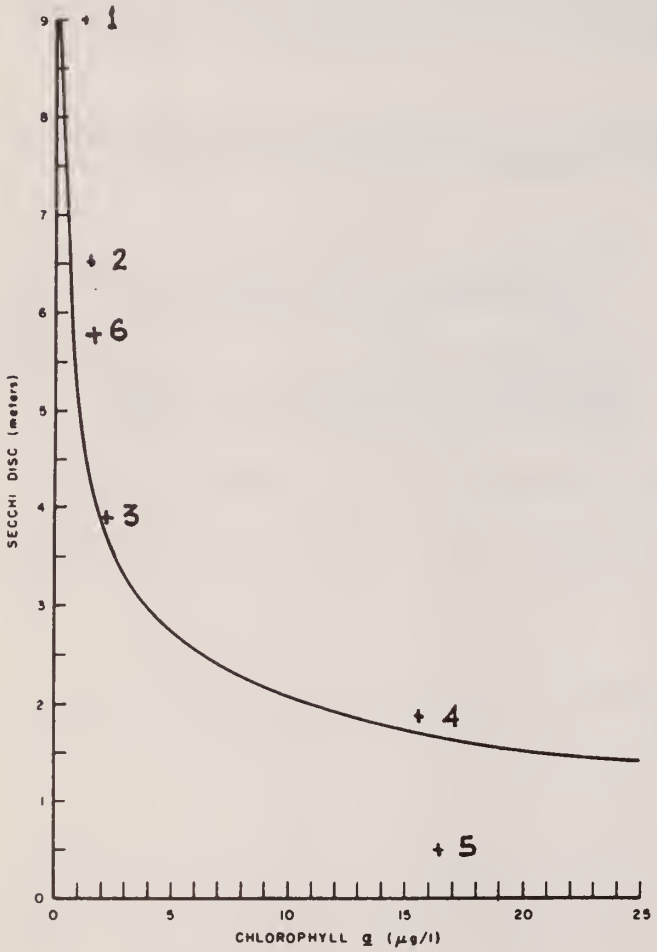
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Walker's Lake

Date	Stn. - Main S.D.	Chloro. a
June 1	6.0	1.8
24	5.5	1.5
July 9	6.25	2.6
23	5.5	-
Aug 13	5.75	1.2
27	5.5	1.7
Mean	5.8	1.8

The Secchi disc readings experienced only minor variations during the period sampled, and the chlorophyll a concentration varied from 1.2 to 2.6 ug/l. The chlorophyll a data for July 23 was not reported due to anomalies. Based on the seasonal means for the two parameters monitored, Walker's Lake would be considered unenriched, characterized by a high degree of water transparency and low densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Walker's Lake from 1974 to 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974	6.4	1.6
1975	5.6	1.6
1976	5.4	2.6
1977	7.2	-
1978	5.8	1.8
"		



1. Kennisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1971
5. Lake Scugog - 1972
6. Walker's Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Walker's Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The inadequacies of 1977 data precludes making comparisons with this year's findings. Comparing the 1974, 1975, 1976 and 1978 data, the overall quality of Walker's Lake appear stable. It is recommended that participation in this program be continued to determine if this trend persists.

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Ministry of the Environment

WASEOSA LAKE
Town of Huntsville,
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

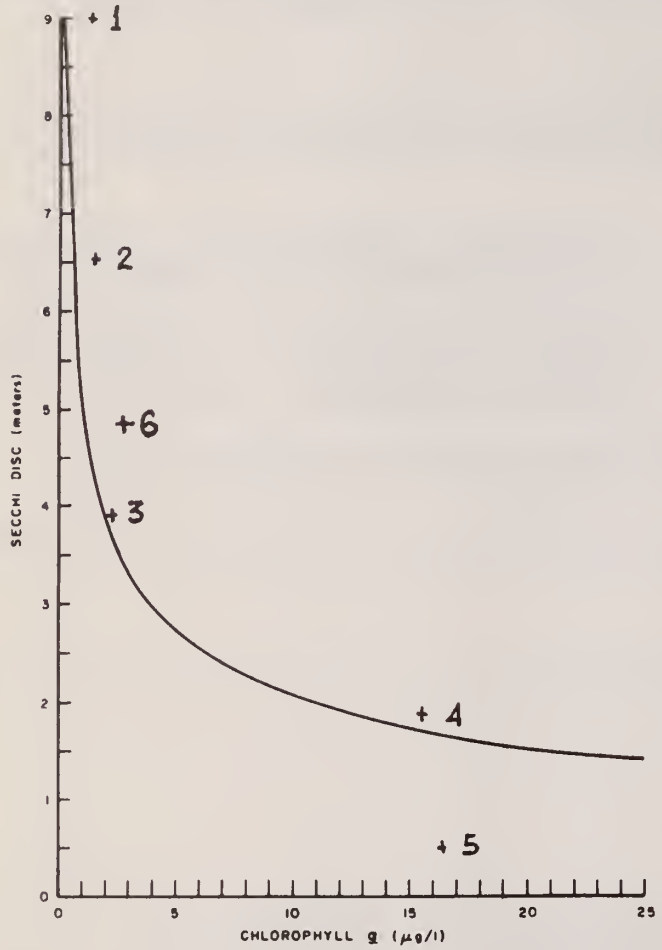
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Waseosa Lake

Date	Stn. - Main S.D.	Chloro. a
June 25	4.0	2.5
July 23	4.5	4.1
Aug 13	5.5	3.1
28	5.0	1.4
Mean	4.8	2.8

Since Waseosa Lake was sampled on only four occasions in 1978, it is difficult to obtain even a reasonably accurate assessment of the lake's trophic status. Based on the mean of the available data Waseosa Lake would be considered moderately enriched, characterized by a moderately high degree of water transparency and moderate densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Waseosa Lake in 1974, 1975, 1977 and 1978

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974	4.2	2.8
1975	4.1	5.2
1976	-	-
1977	5.1	-
1978	4.8	2.8
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Waseosa Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Waseosa Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The yearly variations in the seasonal mean Secchi disc readings, since commencement of this program in 1974, have not been significant, and are partly attributable to natural fluctuations. The overall condition of Waseosa Lake appears stable and it is recommended that participation in this program be continued to determine if this condition persists.

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Ministry of the Environment

WOLF LAKE
Anstruther Township,
Peterborough County

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

The "Self-Help Programme" was initiated in 1971 in response to requests for water quality surveys from concerned cottagers on many recreational lakes throughout the Province. Previous experience indicated that the enrichment status of a lake can be estimated relatively easily by using Secchi disc readings and chlorophyll a concentrations (the green pigment in algae) to give an indication of water clarity and algal density respectively. (A more detailed explanation is provided in the publication on Eutrophication, which may be obtained from the address listed below). Volunteers are supplied with sampling kits, which includes a Secchi disc, a water sampler, bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples biweekly during the ice-free period of the year. The water samples are shipped to the nearest Ministry of the Environment laboratory facilities where they are analyzed for chlorophyll a. The true value of the programme is only realized if it is continued for a number of years in order to define longterm trends.

Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Wolf Lake

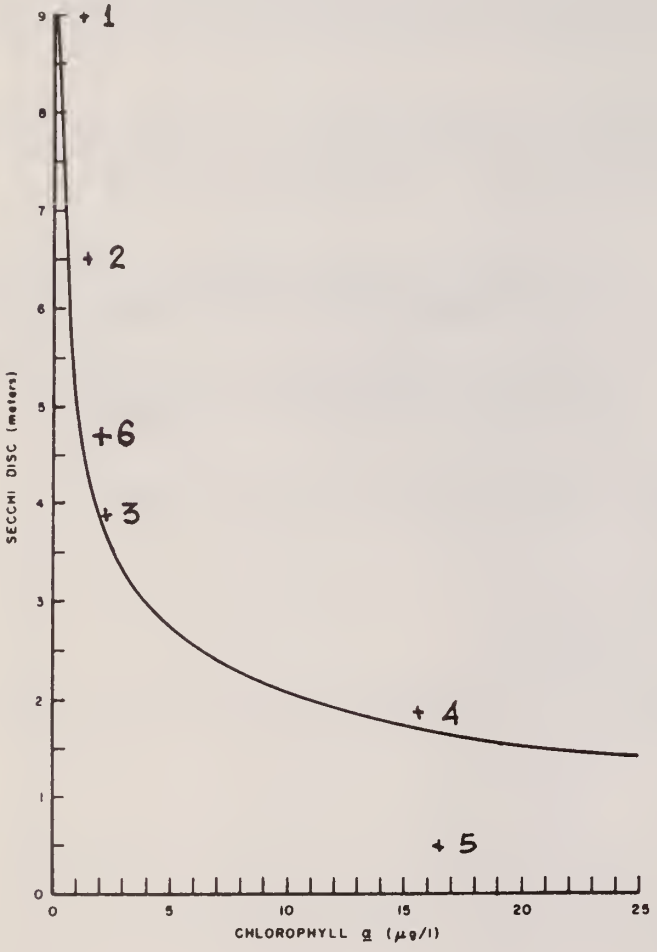
Date	Stn. East Side S.D.	Chloro. a	Stn. West Side S.D.	Chloro. a
July 3	4.75	1.8	4.0	1.1
9	5.0	2.0	5.0	1.6
30	5.0	2.3	5.5	3.1
Aug 13	5.5	1.2	6.0	1.3
Sept 4	4.0	1.9	4.0	1.5
24	4.0	3.6	4.0	3.1
Mean	4.7	2.1	4.8	1.9

No trend was evident in the variation of Secchi disc readings or chlorophyll a concentrations over the sampling period. The average values of the two parameters indicate that Wolf Lake is moderately enriched with a moderately low algal density at both ends of the lake.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Wolf Lake in 1977 and 1978

Year	Stn. East Side S.D.	Chloro. a	Stn. West Side S.D.	Chloro. a
1971				
1972				
1973				
1974				
1975				
1976				
1977*	5.0		5.3	
1978	4.7	2.1	4.8	1.9

* average of two samples



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Wolf Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Wolf Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

Continued participation in the sampling program is encouraged to allow conclusions on long-term trends in lake quality.

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Ministry of the Environment

WOOD LAKE
Town of Bracebridge
District Municipality of Muskoka

Central Region

SECCHI DISC-CHLOROPHYLL a SELF-HELP PROGRAMME - 1978

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Based on experience, mean annual Secchi disc readings and chlorophyll a concentrations in uncoloured lakes have been grouped into approximate ranges to indicate the status of enrichment.

Secchi disc (S.D.) (meters - m)		Chlorophyll a concentrations (Chloro. a) (micrograms per litre - ug/l	
enriched	0-3 m	high algal densities	4 ug/l or more
moderately enriched	3-5 m	moderate algal densities	2-4 ug/l
unenriched	5 m or more	low algal densities	0-2 ug/l

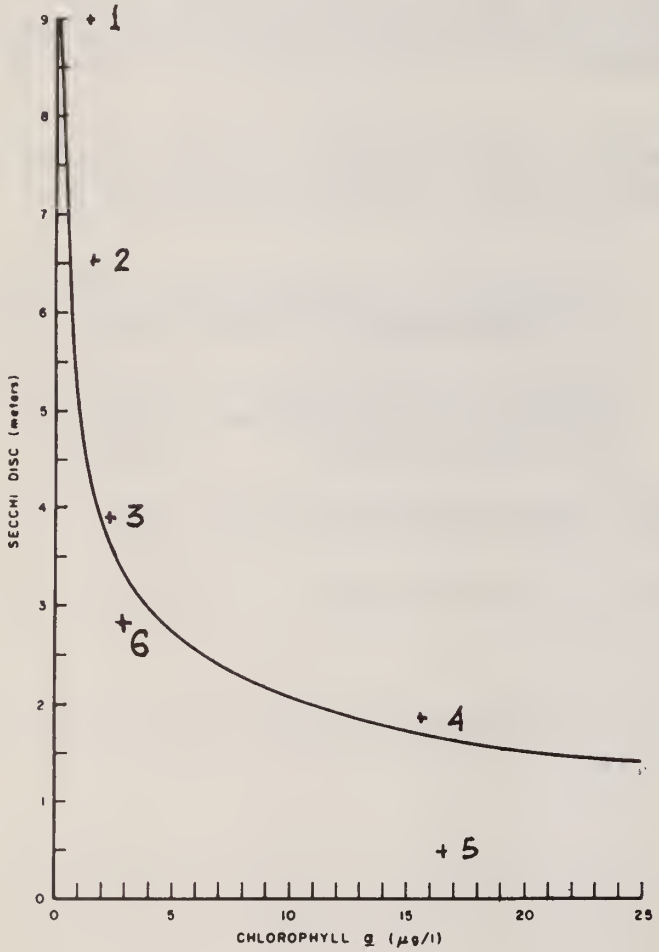
Table 1: Secchi disc (m) and chlorophyll a (ug/l) data collected from Wood Lake

Date		Stn.- Main S.D.	Chloro. a
May	24	3.0	2.4
Aug	1	2.8	-
	5	2.7	3.5
	19	2.7	2.5
	29	3.0	3.6
Mean		2.8	3.0

The variations in the Secchi disc readings was minimal, 2.7 to 3.0 meters. The chlorophyll a concentration varied from 2.4 to 3.6 ug/l. The chlorophyll a data for August 1 was not reported due to anomalies. Based on the seasonal means for the two parameters monitored, Wood Lake would be considered moderately enriched, characterized by a moderate degree of water transparency and moderate densities of suspended algae.

Table 2: Summary of mean values for Secchi disc (m) and chlorophyll a (ug/l) data collected from Wood Lake in 1974, 1975 and 1978.

Year	Stn. - Main S.D.	Chloro. a
1971		
1972		
1973		
1974	4.5	1.3
1975	4.7	2.9
1976		
1977		
1978	2.8	3.0
"		



1. Kenisis Lake - 1976
2. Twelve Mile Lake - 1976
3. Balsam Lake - 1971
4. MacLean Lake - 1973
5. Lake Scugog - 1972
6. Wood Lake - 1978

Figure 1: The relationship between Secchi disc and chlorophyll a for Wood Lake and a number of other well-known recreational lakes in the province. All data are seasonal means.

The significance of the decrease in transparency between 1975 and 1978 cannot be determined from the available data. It is recommended that participation in this program be continued to monitor the future water quality of Wood Lake.

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